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ABSTRACT

An assessment was designed to ascertain student status in the psychomotor, cognitive, and affective domains of physical education, and to survey the physical education programs and instructional practices through the use of student, parent, teacher, and administrator questionnaires. This assessment was conducted throughout the province of British Columbia at the third, seventh, and eleventh grade levels. This resource package is a result of the assessment. This package has been prepared not only as a means of distributing the results of the student testing component, but also as a means of making the survey instruments available for classroom use. The eleventh grade student testing component included psychomotor items, cognitive items, and attitude inventories. Resource materials include: (1) a listing of the goals and learning outcomes which formed the basis of the assessment; (2) copies of all written instruments; (3) protocols for all pyschomotor items; (4) instructions for administering all items; and (5) provincial results and the acceptable ranges set by the interpretation panels. (CJ)

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ASSESSMENT OF
PHYSICAL EDUCATION

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Resource Materials for Teachers

Grade 11

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SP 017 500

Province of British Columbia
Ministry of Education
Division of Public Instruction
Learning Assessment Branch

BRITISH COLUMBIA ASSESSMENT OF PHYSICAL EDUCATION 1979

ASSESSING PHYSICAL EDUCATION

GRADE 11

RESOURCE MATERIALS FOR TEACHERS

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The members of the 1979 Assessment of Physical Education Contract Team who selected and developed assessment instruments, developed goals and learning outcomes, and designed and carried out the provincial assessment:

Alex Carre (Chairman)	-	School of Physical Education and Recreation, U.B.C.
Dick Mosher	-	School of Physical Education and Recreation, U.B.C.
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With special assistance from

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Terry Wood,	-	Graduate student - School of Physical Education and Recreation, U.B.C.

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Skip Cronk	- Principal - School District 52, Prince Rupert
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Norm Forshaw	- Teacher - School District 41, Burnaby
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Madeline Noble	- Trustee - School District 38, Richmond
Jane Sherrill	- Coordinator - School District 44, North Vancouver
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CHAPTER I

INTRODUCTION

The 1979 British Columbia Assessment of Physical Education is a part of the provincial program of the Learning Assessment Branch of the Ministry of Education. The assessment was designed to ascertain student status in the psychomotor, cognitive and affective domains, and to survey the Physical Education programs and instructional practices through the use of student, parent, teacher and administrator questionnaires.

The assessment was conducted at grade 3, 7 and 11 levels in May 1979. A stratified sample of approximately 1000 students was used for each of the three grades.

The findings of all aspects of the assessment are documented in the General Report. A condensed version of the findings is available in the Summary Report which was distributed to all schools in early 1980.

This Resource Package is a natural by-product of this province-wide assessment. The package has been prepared not only as a means of distributing the results of the student testing component of the assessment, but as a means of making the survey instruments and protocols available for classroom use.

The student testing component included:-

- Psychomotor items - Designed to assess student fitness and basic motor abilities which underlie the skills necessary for participation in a variety of physical activities. (Chapter III).

- Cognitive items - Designed to assess understanding and knowledge of concepts related to physical activity. (Chapter IV).

- Attitude Inventories - Designed to assess attitudes toward participation in physical activity. (Chapter V).

This package contains a listing of the Goals and Learning Outcomes which formed the basis of the assessment; copies of all written instruments; protocols for all psychomotor items; instructions for administering all items; provincial results and the acceptable ranges set by the interpretation panels.

A separate package has been prepared for each of Grade 3, Grade 7 and Grade 11.

POTENTIAL USES OF THE PACKAGE

There is almost no limit to the number of ways that resourceful teachers will find to use these materials. Some obvious potential uses are:

i) The complete set of items may be given to a class in order to replicate the provincial assessment. This would provide comparisons with the provincial norms and acceptable ranges.

ii) The complete set of items (or a selection of them) may be given to a sample of students throughout a school or district at the appropriate grade level. Once again this would provide comparison data.

iii) A selection of items may be administered at the start of a year or semester. The results would be useful in course planning, or, after re-testing at the end of a unit or course, to help evaluate student progress or program effectiveness.

iv) The cognitive items may serve as a model for teachers planning to develop items to assess other aspects of the Curriculum.

SOME NECESSARY CAUTIONS

Teachers using this material should guard against misuse and misinterpretation of results by remembering:

i) This package is composed of items, not tests. The assessment results are expressed as the percent of students who reached a certain level, who checked the correct answer, or who held a certain attitude. The instruments were not designed to produce a total score for a student by adding performances together.

ii) This package contains only a sample of potential items. A quick glance at the Goals and Learning Outcomes will show that it was not possible to test every physical skill, or to survey all knowledge and attitude areas. The rationale for including specific items is contained in the General Report.

iii) This package contains assessment instruments, not a curriculum guide. The material was developed to represent a sample of Goals and Learning Outcomes for Physical Education. Restrictions of time and budget prevented the inclusion of items to assess many other Learning Outcomes. These Learning Outcomes remain important components of the curriculum despite their absence from these assessment packages.

iv) This package contains norms specific to Grade 3, Grade 7 or Grade 11 students surveyed in May. The instrument may be used at other grade levels or at other times during the year, but to make valid comparisons teachers would then require results from other studies using similar tests e.g., the C.A.H.P.E.R. Fitness Performance Test.

v) This package presents provincial norms and acceptable ranges for the psychomotor items. These should be used in tandem to provide meaningful interpretations of class, school or district results. To give an example, suppose the performance of your class was slightly better than that of the provincial sample for the Sit and Reach item at Grade 3. Before you judge the performance of you class, the acceptable range set by the expert panel and the judgement of the provincial interpretation panel should be examined. In this case, the provincial performance was judged to be *Weak* - your comparison with the provincial norms should be made in this context.

Further hints on interpreting the results are offered in following chapters.

A video-tape "Physical Education Assessment 1979" is available as a supplement to this package. Members of a testing team demonstrate all phases of the on-site testing component with a group of students on this 30 minute colour tape. The video-tape is in the latest PEMC Catalogue (VT#25).

CHAPTER II

GOALS AND LEARNING OUTCOMES

One of the major components of the Physical Education Assessment was the need to develop a series of Goals and Learning Outcomes which would indicate directions for Physical Education in British Columbia and provide the framework on which to base the assessment. Under the terms of reference provided by the Learning Assessment Branch the development of these Goals and Learning Outcomes became the first major task of the Contract Team. Program Goals are considered to be a series of general statements outlining the intent of the program while Learning Outcomes are a series of more specific statements, possibly sequential, arising from one or more program goals. The actual process of development and revision is described in detail in the General Report.

The Contract Team in consultation with the Advisory Committee undertook an extensive appraisal process which involved a comprehensive literature search and advice from various organizations and interested individuals. On the basis of this appraisal and from input received from the Review Panels, four major Program Goals for the primary, intermediate and secondary levels were developed. Student Learning Outcomes were then specifically formulated for the appropriate educational level. The Goals and Learning Outcomes developed for the primary (end of grade 3), intermediate (end of grade 7), and secondary (end of grade 11) levels are shown on the four pages which follow. The Learning Outcomes assessed are marked with an asterisk.

The final page of this chapter provides a summary of the instruments used to assess these Goals and Learning Outcomes.

GOAL I

THE PHYSICAL EDUCATION PROGRAM SHOULD ASSIST STUDENTS IN DEVELOPING AND MAINTAINING PHYSICAL FITNESS.

PRIMARY - Learning Outcomes

By the end of the primary level physical education program, students should be able to demonstrate:

* 1. an appropriately high level of physical development in the specific fitness components of cardio-vascular endurance, muscular endurance, strength, and flexibility.

* 2. an appropriate level of physical development in the specific anthropometric components of weight and body composition.

INTERMEDIATE - Learning Outcomes

By the end of the intermediate level physical education program, students should be able to demonstrate:

* 1. an appropriately high level of physical development in the specific fitness components of cardio-vascular endurance, muscular endurance, strength and flexibility.

* 2. an appropriate level of physical development in the specific anthropometric components of weight and body composition.

3. the ability to assess personal physical fitness, utilizing appropriate measurement techniques and instruments, in fitness components such as cardio-vascular endurance, muscular endurance, strength, flexibility, and anthropometric measures such as height, weight and girth.

SECONDARY - Learning Outcomes

By the end of the secondary level physical education program, students should be able to demonstrate:

* 1. an appropriately high level of physical development in the specific fitness components of cardio-vascular endurance, muscular endurance, strength, and flexibility.

* 2. an appropriate level of physical development in the specific anthropometric components of weight and body composition.

3. the ability to assess and interpret personal physical fitness, utilizing appropriate measurement techniques and instruments, in fitness components such as cardio-vascular endurance, muscular endurance, strength, flexibility and anthropometric measures such as height, weight, girth and percent body fat.

GOAL II

THE PHYSICAL EDUCATION PROGRAM SHOULD ASSIST STUDENTS IN DEVELOPING EFFICIENT AND EFFECTIVE MOTOR SKILLS AND ENABLE THEM TO APPLY THESE SKILLS TO A VARIETY OF PHYSICAL ACTIVITIES.

PRIMARY - Learning Outcomes

By the end of the primary level physical education program, students should be able to demonstrate:

* 1. a basic level of proficiency in locomotor skills such as walking, running, jumping, galloping, and skipping.

2. a basic level of proficiency in non-locomotor skills such as pushing, pulling, bending, stretching, and twisting.

* 3. a basic level of proficiency in manipulative skills (projection and reception) such as throwing, catching, kicking, and striking.

* 4. a basic level of proficiency in motor abilities such as balance, hand-eye co-ordination, and agility.

5. a basic level of proficiency in the use of space such as being able to travel in different directions using forward, backward and sideward movements.

6. a solution to a movement problem such as travelling from end to end on a bench using one part of the body on the bench and another on the floor.

7. a basic level of proficiency in a variety of activities selected from individual, dual, and group activities in games, gymnastics, dance, aquatics, and outdoor pursuits.

INTERMEDIATE - Learning Outcomes

By the end of the intermediate level physical education program, students should be able to demonstrate:

* 1. an advanced level of proficiency in locomotor skills such as walking, running, jumping, galloping and skipping, and the use of these skills in physical activities.

2. an advanced level of proficiency in non-locomotor skills such as pushing, pulling, bending, stretching, and twisting, and the use of these skills in physical activities.

* 3. an intermediate level of proficiency in manipulative skills (projection and reception) such as throwing, catching, kicking, and striking, and the use of these skills in physical activities.

* 4. an intermediate level of proficiency in motor abilities such as balance, hand-eye co-ordination, and agility, and the use of these abilities in physical activities.

5. an intermediate level of proficiency in the use of space such as being able to travel in different directions using forward, backward and sideward movements.

6. a solution to a movement problem such as making up a movement sequence containing balances on different parts of the body.

7. an intermediate level of proficiency in a variety of activities selected from individual, dual and group activities in games, gymnastics, dance, aquatics, and outdoor pursuits.

SECONDARY - Learning Outcomes

By the end of the secondary level physical education program, students should be able to demonstrate:

1. an advanced level of proficiency in locomotor skills such as walking, running, jumping, galloping and skipping, and the use of these skills in physical activities.

2. an advanced level of proficiency in non-locomotor skills such as pushing, pulling, bending, stretching, and twisting, and the use of these skills in physical activities.

* 3. an advanced level of proficiency in manipulative skills (projection and reception) such as throwing, catching, kicking, and striking, and the use of these skills in physical activities.

* 4. an advanced level of proficiency in motor abilities such as balance, hand-eye co-ordination, and agility, and the use of these abilities in physical activities.

5. an advanced level of proficiency in the use of space such as being able to travel in different directions using forward, backward and sideward movements, and the use of this ability in physical activities.

6. a solution to a movement problem such as designing a floor exercise routine in gymnastics.

7. an advanced level of proficiency in a variety of activities selected from individual, dual, and group activities in games, gymnastics, dance, aquatics, and outdoor pursuits.

GOAL III

THE PHYSICAL EDUCATION PROGRAM SHOULD ASSIST STUDENTS IN DEVELOPING KNOWLEDGE AND UNDERSTANDING OF FACTORS INVOLVED IN ATTAINING COMPETENCE IN AND APPRECIATION OF PHYSICAL ACTIVITY

PRIMARY - Learning Outcomes

By the end of the primary level physical education program, students should be able to demonstrate:

* 1. an understanding of basic rules, techniques and strategies involved in physical activities.
* 2. an understanding of basic movement principles, including basic concepts related to body mechanics and safety, such as the integration of time, weight and space when travelling in different directions at varying speeds.
* 3. an understanding of basic concepts and methods necessary to achieve an appropriate high level of physical fitness such as the effects of continuous activity and the importance of nutrition as it relates to physical activity.
4. an understanding of basic psychological concepts related to physical activity such as a sense of fair play.
* 5. an understanding of basic physiological concepts related to physical activity such as the value of good posture and the effects of exercise on heart rate.

INTERMEDIATE - Learning Outcomes

By the end of the intermediate level physical education program, students should be able to demonstrate:

* 1. an understanding of an intermediate level of rules, techniques, and strategies involved in physical activities.
* 2. an understanding of basic movement principles, including intermediate concepts related to body mechanics and safety, such as the integration of time, weight and space required when using the arms to develop increased momentum in jumping for distance.
* 3. an understanding of intermediate level concepts and methods necessary to achieve an appropriate high level of physical fitness such as the effects of circuit training and the importance of nutrition as it relates to physical activity.
* 4. an understanding of intermediate level psychological concepts, related to physical activity such as the development of co-operative behaviour.
* 5. an understanding of intermediate level physiological concepts, including structure and function of body systems, related to physical activity such as the value of good posture and the effects of regular exercise on resting and recovery heart rates.

SECONDARY - Learning Outcomes

By the end of the secondary level physical education program, students should be able to demonstrate:

* 1. an understanding of advanced rules, techniques, and strategies involved in physical activities.
* 2. an understanding of basic movement principles, including advanced concepts related to body mechanics and safety, such as the integration of time, weight and space in developing a successful spike in volleyball.
* 3. an understanding of advanced concepts and methods necessary to achieve an appropriately high level of physical fitness such as the specificity of aerobic and anaerboic training and the importance of nutrition as it relates to physical activity.
* 4. an understanding of advanced psychological concepts such as the relationship between physical activity and physical and mental stress.
* 5. an understanding of advanced physiological concepts related to physical activity such as the value of good posture and the effects of regular exercise on cardio-vascular function.
* 6. an understanding of basic concepts related to the structure and function of the following body systems: circulatory, digestive, endocrine, excretory, muscular, nervous, respiratory and skeletal, together with an understanding of how these systems interrelate and how they are affected by physical activity.

GOAL IV

THE PHYSICAL EDUCATION PROGRAM SHOULD ASSIST STUDENTS IN DEVELOPING AND MAINTAINING POSITIVE PERSONAL ATTRIBUTES AND INTER-PERSONAL RELATIONSHIPS AND A POSITIVE ATTITUDE TOWARDS PARTICIPATION IN PHYSICAL ACTIVITY.

PRIMARY - Learning Outcomes

By the end of the primary physical education program students should be able to demonstrate:

1. a recognition of the value of achieving personal competence in physical activities.
2. a recognition of the unique physical ability of self and others.
3. responsibility for one's own behaviour.
4. a recognition of the value inherent in the development and lifetime maintenance of an appropriately high level of physical fitness.
* 5. a recognition of physical activity as an aesthetic experience such as developing an appreciation of form and style.
* 6. a recognition of physical activity as a social experience such as recognizing the relationship of one's own behaviour to the behaviour of others.
* 7. a recognition of the value of physical activity for health and fitness.

INTERMEDIATE - Learning Outcomes

By the end of the intermediate physical education program students should be able to demonstrate:

1. an appreciation of the value of achieving personal competence in physical activities.
2. an appreciation of the unique physical ability of self and others.
3. responsibility for one's own behaviour.
4. an appreciation of the value inherent in the development and lifetime maintenance of an appropriately high level of physical fitness.
* 5. an appreciation of physical activity as an aesthetic experience such as developing an appreciation of form and style in a variety of physical activities.
* 6. an appreciation of physical activity as a social experience such as developing an appreciation for leadership.
* 7. an appreciation of the value of physical activity for health and fitness.

SECONDARY - Learning Outcomes

By the end of the secondary physical education program students should be able to demonstrate:

1. a positive attitude toward the achievement of personal competence in physical activities.
2. a positive attitude toward the unique physical ability of self and others.
3. responsibility for one's own behaviour.
4. a positive attitude toward the development and lifetime maintenance of an appropriately high level of physical fitness.
* 5. a positive attitude toward physical activity as an aesthetic experience such as an appreciation of form and style as it applies to their personal movement patterns.
* 6. a positive attitude towards physical activity as a social experience such as appreciating the role of leadership through experience.
* 7. a positive attitude toward the value of physical activity for health and fitness.

PHYSICAL EDUCATION ASSESSMENT

STUDENT INSTRUMENTATION

GOAL	TEST AREA	TEST INSTRUMENT		
		Grade 3	Grade 7	Grade 11
I	A. Anthropometric Measures 1. Height 2. Weight 3. Body Composition	Anthropometer Spring Scales Skinfolds/Harpenden Calipers	Anthropometer Spring Scales Skinfolds/Harpenden Calipers	Anthropometer Spring Scales Skinfolds/Harpenden Calipers
I	B. Physical Fitness 1. Cardiovascular Endurance 2. Muscular Endurance a. Static b. Dynamic 3. Strength a. Static b. Explosive (power)	9 minute run Flexed Arm Hang Speed Sit-Ups(60sec.) Grip Strength Standing Long Jump	12 minute run Flexed Arm Hang Speed Sit-ups(60sec.) Grip Strength Standing Long Jump	12 minute run Flexed Arm Hang Speed Sit-Ups(60sec.) Grip Strength Standing Long Jump
II	C. Motor Ability 1. Agility 2. Hand-Eye Coordination 3. Locomotor Skill 4. Manipulative Skill	Side Slide Wall Toss 50' Hop (15.2 m) Form in Throwing	Side Slide Wall Toss 50' Hop (15.2 m) Form in Throwing	Side Slide Wall Toss ---- Form in Throwing
III	D. Cognitive	B.C. Assessment (32 Questions)	B.C. Assessment (39 Questions)	B.C. Assessment (47 Questions)
IV	E. Affective 1. Attitude Toward Participation in Physical Activity	B.C. Assessment (5 Scales)	Modified Kenyon Attitude Inventory (5 Scales)	Modified Kenyon Attitude Inventory (5 Scales)

CHAPTER III

PSYCHOMOTOR ITEMS GRADE: 11

The items in this chapter were designed to measure a sample of the Learning Outcomes for Goals I and II (Fitness and Motor Ability). The rationale for the selection of these particular instruments can be found in the Summary and General Reports.

These items will be of great interest to educators in British Columbia now that there are not only norms for Grade 11 students in this province, but also acceptable ranges of performance suggested by a panel of professionals in physical education.

Comparisons of class or school results with the provincial norms from the 1979 Assessment should be made with care. In the assessment, the student testing component (psychomotor, cognitive and affective items) was carried out in a three hour period by a team of trained testers. Some fatigue factor may have produced a lower level of performance than if the items were administered separately on different days. Training effects may also influence results. For example, administering the "Throw for Form" item immediately following a unit on softball may improve class performance and comparison with the provincial norms may be unjustified.

Instructions for the administration of the items follow. Included in this chapter are -

- Warm-up Drill - This five minute drill was performed before the Psychomotor testing and should be used if an attempt is being made to standardize conditions.

- Psychomotor Record Sheet - This was used by the testing team and may be copied for class or school use. In items where more than one trial was given, the best result was the one used.

- How to Read the Provincial Norms - This example shows how to interpret the graph which shows the assessment results.

- Index to Psychomotor Items - This is provided to allow quick access to each item.

- Psychomotor Items - Each item is composed of directions for administration, provincial norms, acceptable ranges and the interpretation panel judgement of the provincial performance.

- Equipment Resource List - Provides a number of potential suppliers of the equipment used in the assessment.

WARM-UP DRILL

This five minute session should be used prior to the psychomotor section of the assessment. Teachers wishing to replicate this phase of the assessment should include this warm-up to standardize student performance.

A. Running on the spot: 1 - 2 minutes.

B. Rotations - circle to the right 5 - 10 times and then to the left 5 - 10 times.

1. Neck
2. Arm - forward and backwards
3. Trunk - hands on hips, circle at the waist
4. Hip - hands on hips, standing erect, circle from the hips
5. Knee - hands on the knees, rotate to the right and left
6. Ankle - each ankle separately

C. Stretching (Standing position)

1. Side - hands clasped over head, knees bent slightly, stretch to the right and the left 5 times each and hold for 5 seconds
2. Calf - place one leg in front of the other, front knee bent, back heel on the ground, lean forward to stretch the calf muscle
3. Quadriceps (Thigh) - grasp one foot behind back and gently pull the foot towards the buttock, hold 10 seconds repeat for other leg.

GRADE 1

NAME _____

DATE _____

PHYSICAL EDUCATION ASSESSMENT

PSYCHOMOTOR RECORD SHEET

A. ANTHROPOMETRIC

Height (to nearest tenth cm) ..... ☐☐☐.☐

Weight (to nearest tenth kg) ..... ☐☐☐.☐

Sex M1 F2

Skinfold (to nearest tenth mm)

biceps	T1	☐☐.☐	T2	☐☐.☐
triceps	T1	☐☐.☐	T2	☐☐.☐
subscapulor	T1	☐☐.☐	T2	☐☐.☐
supra-iliac	T1	☐☐.☐	T2	☐☐.☐

B. FITNESS

Sit and Reach (cm) ..... ☐☐

Flexed Arm Hang (secs) ..... ☐☐☐

Standing Long Jump (to nearest cm) T1 ☐☐☐ T2 ☐☐☐

Situps ..... ☐☐

Handgrip - dominant hand R1 L2

- strength (kg) T1 ☐☐ T2 ☐☐

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Timed Run ☐☐ (laps) + ☐☐☐ (metres)

C. MOTOR ABILITY

Side Slide	T1	☐☐	T2	☐☐
Wall Pass	T1	☐☐	T2	☐☐

Throwing (form)

Feet ..... ☐

Body Rotation . ☐

Arm Action .... ☐

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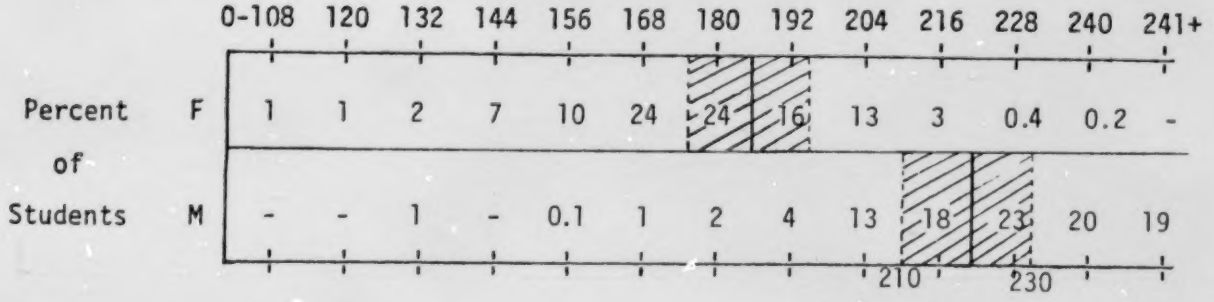
HOW TO READ THE PROVINCIAL NORMS (AND ACCEPTABLE RANGES)

Each psychomotor item is followed by a graph such as the one below.

PROVINCIAL RESULTS - GRADE 11

Standing Long Jump: Centimeters



= Interpretation panel range of minimally acceptable performance and mid-point of range.

Interpretation panel ratings of provincial results Females - *Marginal*

Males - *Satisfactory*

Reading from the left side of the scale, 1% of the girls jumped less than 108 cm; 1% of the girls jumped between 108 and 120 cm; 2% of the girls jumped 120 to 132 cm; 7% jumped 132 to 144 cm and so on. The line for the boys may be read similarly.

The shaded areas between the dotted lines indicate the range of acceptable performance set by the interpretation panel. In this case the range set for girls is 175 to 195 cm; the acceptable range for boys is 210 to 230 cm. The solid line indicates the mid-point of the acceptable range (185 cm for girls, 220 for boys). The percentage of students performing at a level above this mid-point guided the interpretation panel ratings of provincial results. On this item, between 17% and 33% of the girls exceeded the mid-point (the mid-point fall between intervals of the scale so some interpolation is necessary). For the boys, between 39% and 62% exceeded the mid-point.

On the five point scale used (*Strong, Very Satisfactory, Satisfactory, Marginal, Weak*) the interpretation panel judged the provincial performance of girls to be *Marginal* and the performance of boys to be *Satisfactory*.

The interpretation panel set the same ranges of acceptable performance for both sexes at grades 3 and 7. These "unisex" standards were accompanied by a caution that the ranges may favour the males in grade 7 on certain psychomotor items. A number of factors at the grade 11 level were judged to necessitate different ranges of performance for males and females.

INDEX TO PSYCHOMOTOR ITEMS:

GRADE 11

Page

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3. Body Composition 21

B. Fitness

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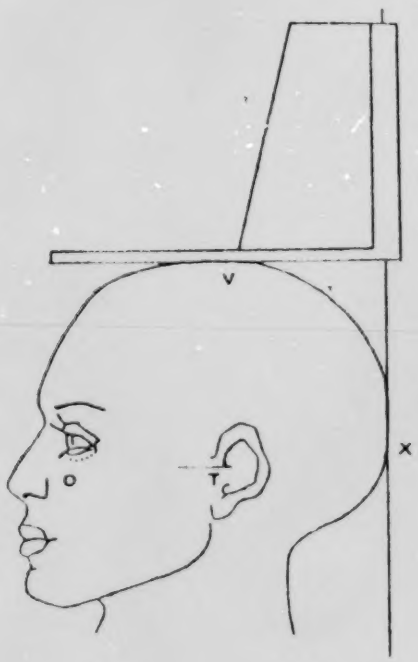
3. Standing Long Jump 30
4. Sit-Ups 31
5. Hand Grip 33
6. Timed Run 35

C. Motor Ability

1. Side Slide 38
2. Wall Pass 40
3. Throwing (Form) 41

A. Anthopometric (1)

- Measure: Height (Free standing stature)
- Equipment: Anthropometer (See equipment guide)
- General Description: Student's standing height is measured to the nearest 0.5 centimeter, e.g. 140.5 cm.
- Procedures: In taking the measure, the student is in stocking feet, heels together and arms hanging naturally by the sides. The student is instructed to look straight ahead (Frankfort Plane) take a deep breath and stand as tall as possible.
- Scoring: To the nearest 0.1 centimeter, e.g. 140.3 cm.



(O) Orbitale: Lower margin of eye socket.

(T) Tragion: Notch above tragus of ear or at upper margin of zygomatic bone at that point.

(X) Frankfort Plane: Orbitale-tragion line horizontal.

(V) Vertex: Highest point on skull when head is held in Frankfurt Plane.

PROVINCIAL RESULTS - GRADE 11

Height in Centimeters

Percent of Students		0-110	118	126	134	142	150	158	166	174	182	182+
	F	-	-	-	-	-	1	18	50	29	3	-
	M	-	-	-	-	-	0.1	0.1	4	37	43	16

No interpretation panel range or ratings were required for height.

A. Anthopometric (2)

- Measure: Weight
- Equipment: Calibrated spring scale (See equipment guide)
- General Description: Student's weight is measured to the nearest 0.1 kilogram.
- Procedures: The student is measured in stocking feet, in standard gym clothing.
- Scoring: To the nearest 0.1 kilogram.

PROVINCIAL RESULTS - GRADE 11

Weight in Kilograms

Percent of Students		0-25	30	35	40	45	50	55	60	65	70	75	80	80+
	F	-	-	-	-	4	17	26	28	15	7	3	0.4	0.3
	M	-	-	-	-	-	2	5	12	27	23	18	6	8

No interpretation panel ranges or ratings were required for weight.

A. Anthropometric (3)

- Measure: Body Composition

- Equipment: Harpenden skinfold calipers (See equipment guide)

- General Description: Student's subcutaneous fat is measured at four different sites on the body.

- Procedures: Standard laboratory procedures will be used in collecting the skinfold data. Please see attached notes "The Measurement of Body Composition", which outline these procedures. Note that four (4) sites only will be evaluated. These sites are:

  a) biceps
  b) triceps
  c) subscapular
  d) supra-iliac

- Scoring: Scores are recorded to the nearest 0.1 millimeter, for each of two trials at the four sites. The final score is the average of the two trials. The calculation of Percent Body Fat* from the four skinfold measures requires using the following three steps:

STEP 1 Add together the 4 skinfold measures. Go to the table on page 22 and find the Converted Sum corresponding to the sum of the 4 skinfold measures.

- For example, a female student has the following 4 skinfold measures:

Biceps	- 5 mm
Triceps	- 10 mm
subscapular	- 8 mm
supra-iliac	- 12 mm
	35 mm = sum of 4 skinfolds

Reading from the table (page 22) for a sum of 35, the Converted Sum = .5441.

STEP 2 Calculate body density as follows, using the Converted Sum found in STEP 1:

Body density (males) = 1.1533 - 0.0643 x(1 + Converted Sum)

Body density (females) = 1.1369 - 0.0598 x(1 + Converted Sum)

- For example, to calculate the body density of the female student

*Durrin, J. and Womersley, J. Body Fat Assessed from Total Body Density and its Estimation from Skinfold Thickness. British Journal of Nutrition, 1974, Volume 34, page 77.

CONVERSION TABLE

Sum of 4 Skinfolds	Converted Sum	Sum of 4 Skinfolds	Converted Sum	Sum of 4 Skinfolds	Converted Sum	Sum of 4 Skinfolds	Converted Sum
10	.0000	33	.5185	55	.7404	77	.8865
11	.0414	34	.5315	56	.7482	78	.8921
12	.0792	35	.5441	57	.7559	79	.8976
13	.1139	36	.5563	58	.7634	80	.9031
14	.1461	37	.5682	59	.7709	81	.9085
15	.1761	38	.5798	60	.7782	82	.9138
16	.2041	39	.5911	61	.7853	83	.9191
17	.2304	40	.6021	62	.7924	84	.9243
18	.2553	41	.6128	63	.7993	85	.9294
19	.2788	42	.6232	64	.8062	86	.9345
20	.3010	43	.6335	65	.8129	87	.9395
21	.3222	44	.6435	66	.8195	88	.9445
22	.3424	45	.6532	67	.8261	89	.9494
23	.3617	46	.6628	68	.8325	90	.9542
24	.3802	47	.6721	69	.8388	91	.9590
25	.3979	48	.6812	70	.8451	92	.9638
26	.4150	49	.6902	71	.8513	93	.9685
27	.4314	50	.6990	72	.8573	94	.9731
28	.4472	51	.7076	73	.8633	95	.9777
29	.4624	52	.7160	74	.8692	96	.9823
30	.4771	53	.7243	75	.8751	97	.9868
31	.4914	54	.7324	76	.8808	98	.9912
32	.5051					99	.9956

referred to in STEP 1, the following calculations apply:

Body density (females) = 1.1549 - 0.0678 (1 + .5441)
= 1.1549 - 0.0678 (1.5441)
= 1.1549 - 0.1047
= 1.0502

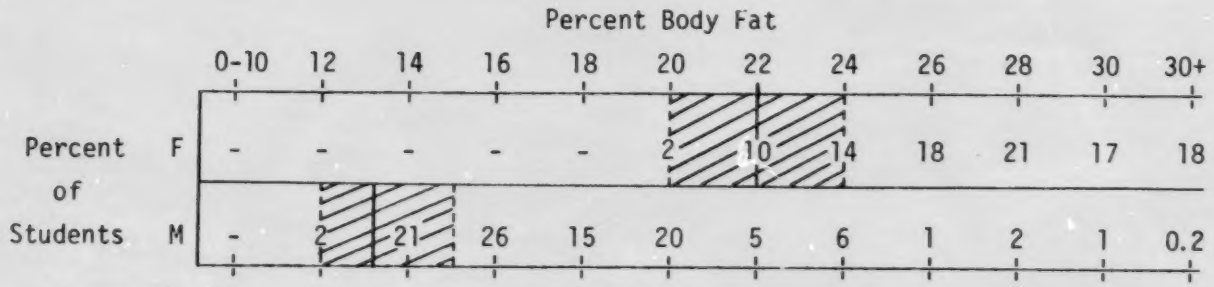
STEP 3 Calculate Percent Body Fat using body density value found in STEP 2:

$$\text{Percent Body Fat} = \left[\frac{4.95}{\text{Body density}} - 4.50\right] \times 100$$

- For example, for the female student referred to above, the following calculations apply:

$$\text{Percent Body Fat} = \left[\frac{4.95}{1.0502} - 4.50\right] \times 100$$
$$= \left[4.71 - 4.50\right] \times 100$$
$$= \left[.21\right] \times 100$$
$$= 21$$

PROVINCIAL RESULTS - GRADE 11



= Interpretation panel range of minimally acceptable performance and mid-point of range.

Interpretation panel rating of provincial results Females - *Weak*

Males - *Weak*

THE MEASUREMENT OF BODY COMPOSITION

I. Basic Considerations

All measurements should be taken:

- in a standing position where applicable with the student standing in the military position[1].
- in the morning.
- with a minimum of pressure.
- at least twice to ensure validity. The first full series of measurements on a student should be followed immediately by the second series of measurements on that student.

II. Methodology

A. Skinfold Measurements - Technique

- All skinfold measurements are made on the right side of the body and are taken in the vertical plane except when the lines of Linn (the natural folds of the skin) result in torsion of the vertical skinfold, in which case the skinfold is taken along these lines.

- Firmly grasp (not exceeding the pain threshold) a fold of the skin between the left thumb and index finger and lift up. The skinfold held should include two thicknesses of skin and subcutaneous fat but not muscle or fascia. When in doubt, instruct the student to perform an act which results in the contraction of the muscle underlying the skinfold held in the grasp. Place contact surfaces of the caliper about 1 centimeter from the fingers holding the skinfold and at a depth approximately equal to the thickness of the fold. Very slightly release pressure of fingers so that the greater pressure is exerted by the caliper. Release the scissor grip supporting the weight of the caliper. When the needle on the caliper stops, take the reading to the nearest 1/10mm (be careful of jaw face slippage on the skin). On the rare occasions when the needle continues to move, the reading must be taken immediately after the application of the spring's pressure.

- Because of fairly rapid changes in the layer of the subcutaneous fat over relatively small distances at certain areas of the body surface, the sites should be clearly defined and carefully identified prior to measuring skinfolds in a given individual. The locations of subcutaneous fat measurement sites and the measurement technique is illustrated in the accompanying figures.

Skinfold Measurements - Instrument

- Harpenden Skinfold Caliper, with a contact surface of 6 x 15mm and a constant pressure of 10gm/mm^2 is exerted over the full range of measurement (0-50mm).

---

[1]*Military Position: The student stands at attention, head erect, looking straight ahead, so that his visual axis is parallel to the surface of the floor. The latter is the best free approximation to the Frankfurt Plane*[2].

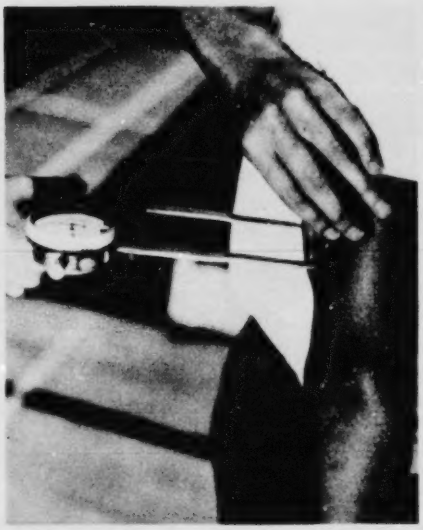
[2]*Frankfurt Plane: The plane determined by the lowest points on the infra-orbital margins and the tragion or tragial notch of the ear. This corresponds almost exactly to the plane of the visual axis, which is obtained when the individual is looking straight ahead of himself.*

Skinfold Measurement - Subcutaneous Fat Measurement Sites

Sitting Position

Bicep - the site is located on the front of the right upper arm over the mid-point of the muscle belly with the arm resting supinated on the student's thigh.

Standing Position



Tricep - located on the right arm at the midposter between the tip of the acromion and the tip of the olecranon with the elbow in 90° flexion, with the extremity hanging straight in an extended but relaxed position. The skinfold is lifted parallel to its long axis and should be located precisely.

Subscapular
Taken below the tip of the inferior angle of the right scapula with the student in a relaxed standing position. The fold is taken in the diagonal plane at about a 45° angle from the horizontal and vertical planes medially upward and laterally downward. Small differences in locating the site are not important.

Super-iliac
The skinfold is located immediately above (1 to 2 inches) the crest of the right illium (anterior, superior iliac spine). The thumb is placed over the iliac crest, and the fold lifted at a slight angle to the vertical along the normal fold line on the midaxillary line.

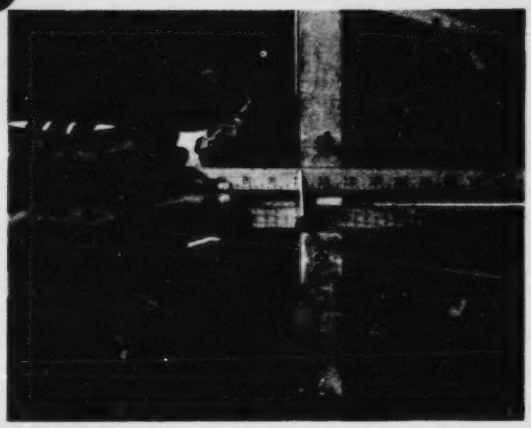
B. Fitness (1)

- Measure: Sit and Reach

- Equipment: Sit and reach apparatus (See equipment guide)

- General Description: Student flexes at the hip and reaches as far forward as possible.

- Procedures:



1) Tester explains the test and demonstrates the movement of the apparatus.

2) Tester moves away from the apparatus and again demonstrates the movement to the students. (Index fingers together, legs straight and together. Student bobs forward and back three times, holding for two seconds at full flexion on the third bob.)

3) All students then practice this movement together, away from the apparatus, twice.

4) Student assumes a sitting position, legs together and fully extended. Feet are placed against the footprints on the vertical face of the apparatus with the horizontal crossbar adjusted to the size of the student's feet.

5) Tester places forearm across the student's knees.

6) Student bends forward from the waist with arms extended and index fingers pointed and together.

7) Student performs three slow "bobs" each to full flexion, and holds for 2 seconds on the third, when measure is taken.

CAUTION: The emphasis is on a very slow bobbing motion. A quick motion will result in tightening of the hamstrings and a decline in performance.

- Scoring: The score is the measurement read, to the nearest centimeter, from the sliding scale on the crossbar. One trial is administered and the score is the farthest point that the sliding scale is pushed by the index fingers.

NOTE: A score of 25 centimeters is equivalent to just reaching the toes and so 1 cm. less than the toes would be 24 cm.; 1 cm. farther than the toes would be 26 cm.

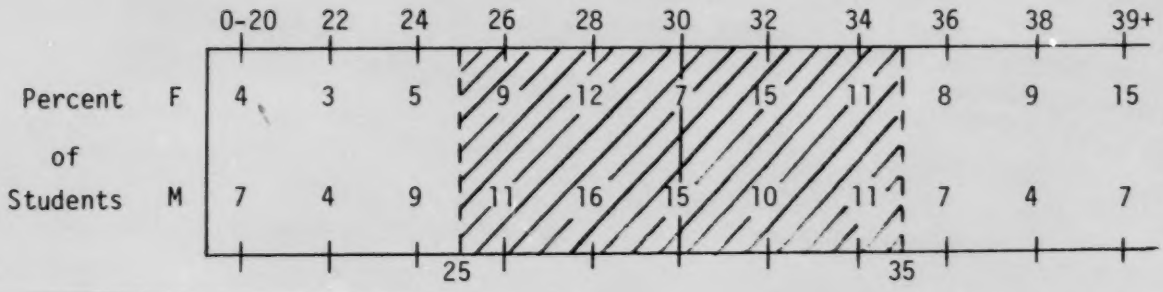
- Points to Consider:

1. A re-trial is given if the tester feels that:
   a) the knees are bent during the trial; or
   b) the index fingers are not kept together at all times during the trial.

2. No verbal encouragement is given by the tester or spectators.

PROVINCIAL RESULTS - GRADE 11

Sit and Reach: Centimeters



= Interpretation panel range of minimally acceptable performance and mid-point of range.

Interpretation panel rating of provincial results Females - *Satisfactory*

Males - *Marginal*

B. Fitness (2)

- Measure: Flexed Arm Hang

- Equipment: A metal bar 1½ inches (1.81 cm.) in thickness, and an adjustable support frame. (See equipment guide)

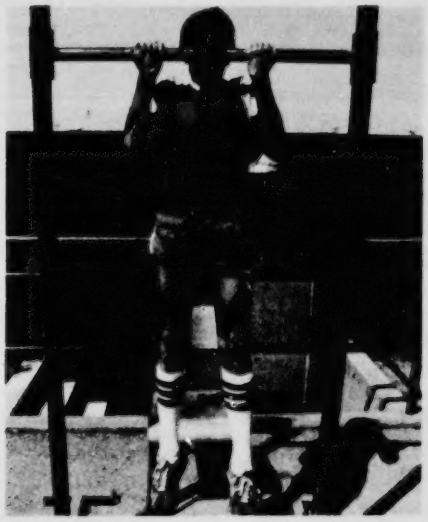
- General Description: Student hangs from a bar for as long a period of time as possible.

- Procedures:

1) Metal bar is adjusted to a height such that student's feet will hang approximately six to twelve inches above the floor surface.

2) Student uses the bench to step up to the bar.

3) Student takes a reverse grip (underhand) with thumbs around the bar, hands shoulder width apart and eyes level with the bar. The arms are fully bent.



4) On the signal "Ready" students prepare to take their weight on their arms, bar level maintained between the eyebrows and the tip of the nose.

5) When the student has assumed the required position, tester gives the command "Go", and student leans forward toward bar taking their full weight on the bar. When student's feet leave the bench the tester starts the watch.

- Scoring: One trial is given. The total time in seconds that the student can maintain the start position is recorded. The trial is terminated when the forehead drops below the bar.

- Points to Consider:
  1. The face should not touch the bar.
  2. No verbal encouragement is given by the tester or spectators.
  3. Tester stands near the student throughout the trial, for safety purposes.
  4. One student is tested at a time.
  5. After the signal "Go", tester stops any swinging motion of the student.

PROVINCIAL RESULTS - GRADE 11

Flexed Arm Hang: Number of Seconds

Percent of Students		0-8	16	24	32	40	48	56	64	72	80	86+
	F	23	27	24	15	6	3	2	-	-	-	-
	M	.3	3	3	4	20	20	21	12	7	1	7

40 60

▨ = Interpretation panel range of minimally acceptable performance and mid-point of range.

Interpretation panel rating of provincial results Females - *Weak*

Males - *Satisfactory*

B. Fitness (3)

- Measure: Standing Long Jump

- Equipment: One (1) 3m. measuring tape, marked in centimeters. Indoor-outdoor carpeting, with rubber backing. (See equipment guide). Pointer and floor tape.

- General Description: Student jumps as far as possible, using two foot take-off.

- Procedures: 1) All students take 3 practice trials off the mat followed by 1 practice trial on the mat.

2) Student assumes a ready position behind the starting tape.

3) Student jumps as far as possible, using a two-foot take-off.

- Scoring: Two (2) test trials are given, with one additional trial given for an error (e.g. stepping over starting line, falling backward on landing). Distance is measured from the heel of the back foot, to the nearest centimeter. Final score is the best score obtained from the two trials.

- Points to Consider:
1. A demonstration should be given by the tester before the practice jumps are taken, pointing out, in particular, the use of the arms.
2. No verbal encouragement from tester or spectators.

PROVINCIAL RESULTS - GRADE 11

Standing Long Jump: Centimeters

Percent of Students		0-108	120	132	144	156	168	180	192	204	216	228	240	241+
	F	1	1	2	7	10	24	24	16	13	3	0.4	0.2	-
	M	-	-	1	-	0.1	1	2	4	13	18	23	20	19

210 230

▨ = Interpretation panel range of minimally acceptable performance and mid-point of range.

Interpretation panel ratings of provincial results Females - *Marginal*

Males - *Satisfactory*

B. Fitness (4)

- Measure: One Minute Speed Sit-Ups

- Equipment: Gym mats, stopwatch.

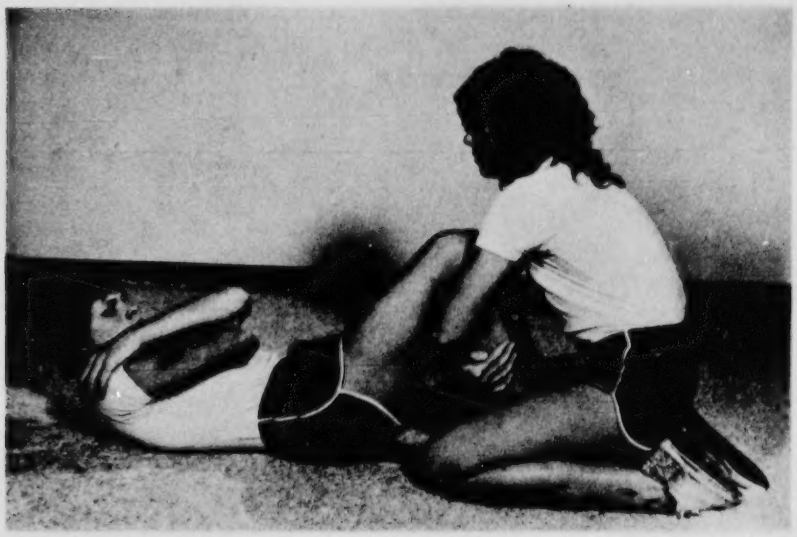
- General Description: Student performs as many bent-knee sit-ups as possible in one minute.

- Procedures:

1) Student lies on back, on gym mat, with forearms crossed, hands on opposite shoulders.

2) Knees are bent such that heels are situated 12-18 inches (30-46cm.) from the buttocks. Feet are flat and slightly apart.

3) Partner sits on the student's feet in such a position as to insure that student's feet maintain contact with the floor. Partner's hands are placed on student's calves just below the knees.



4) On the starting signal "Ready-Go", student curls up, touching elbows to thighs while maintaining arms close to body throughout the trial.

5) Students return their backs to the floor.

NOTE: Students do not have to touch their shoulders to the floor - just their back.

6) Repeat as many times as possible in 1 minute.

7) Both student and partner count the number of sit-ups performed (partner out-loud, student. silently).

- Scoring: One trial is given. Count one sit-up each time the elbows touch the thighs. Record each valid number of sit-ups.

-Points to Consider:

1. No tester or spectator encouragement to be given.
2. Before starting trial, remind students to:
   a) keep hands on shoulders throughout the trial (unless resting).
   b) rest if necessary, and start again when they are ready, within the one minute time span.
   c) keep the feet as still as possible.
   d) maintain a curled position, keeping the arms close to the body, throughout the duration of the trial.
   e) keep buttocks in contact with the mat throughout the trial.
3. For Grade 3 students, use a third counter whenever possible.
4. Four or five students may be tested at one time.
5. Students should be safely positioned on the mat to ensure that the head does not contact the floor.

PROVINCIAL RESULTS - GRADE 11

Number of Sit-Ups (In one minute)

Percent of Students		0-18	21	24	27	30	33	36	39	42	45	48	51	52+
	F	3	2	2	5	9	10	11	11	14	6	12	6	11
	M	-	-	0.3	0.3	1	3	3	5	12	14	10	14	39

45 55

= Interpretation panel range of minimally acceptable performance and mid-point of range.

Interpretation panel ratings of provincial results Females - *Marginal*

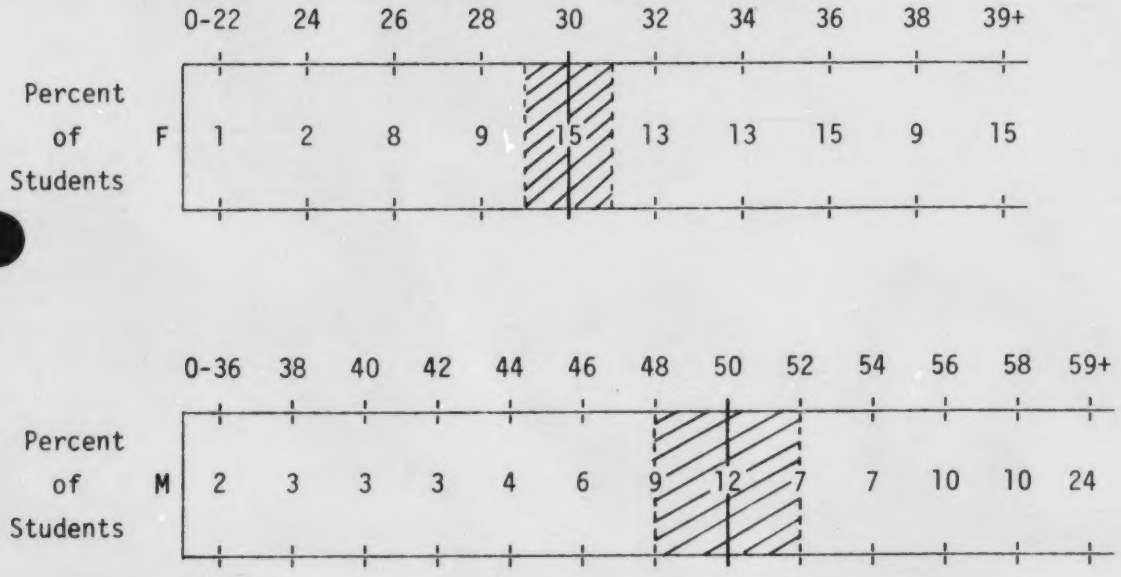
Males - *Satisfactory*

3. Remind students that there is to be little movement of the arm during the actual squeezing of the dynamometer.

4. Calibration should be checked regularly by teacher according to the manual included with the dynamometer.

PROVINCIAL RESULTS - GRADE 11

Grip Strength: Kilograms



= Interpretation panel range of minimally acceptable performance and mid-point of range.

Interpretation panel ratings of provincial results Females - *Satisfactory*

Males - *Satisfactory*

B. Fitness (5)

- Measure: Grip Strength

- Equipment: Lafayette Hand Dynamometer (See equipment guide)

- General Description: Student squeezes the hand dynamometer as hard as possible, with the dominant hand.

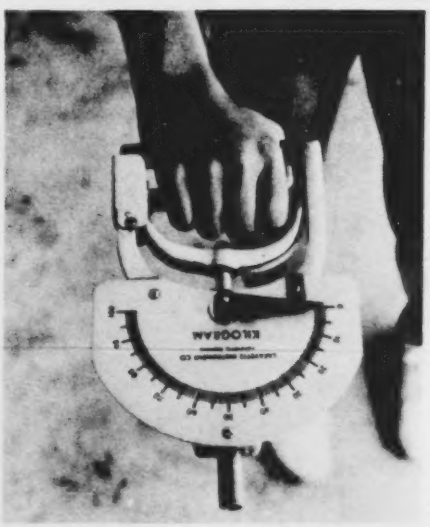
- Procedures:

1) Tester adjusts the hand dynamometer cross-bar (adjustable handle) such that it rests between the first and second knuckles (from the tips of the fingers). This is to insure that the handle is in a comfortable position; conducive to maximal contraction.

2) Student grips the dynamometer with the dominant hand, arm at the side of the body, elbow slightly flexed.

3) The face of the dynamometer should be pointing away from the student.

4) On command, student squeezes as hard as possible, with little movement of the arm.



- Scoring: Two (2) non-consecutive trials are given, both with the dominant hand. (Tester notes dominant hand in space provided). Both scores are recorded to the nearest kilogram. The final score is the best of the two trials.

- Points to Consider:

1. No verbal encouragement from tester or spectators.

2. The elbow should not touch the body during the trial.

B. Fitness (6)

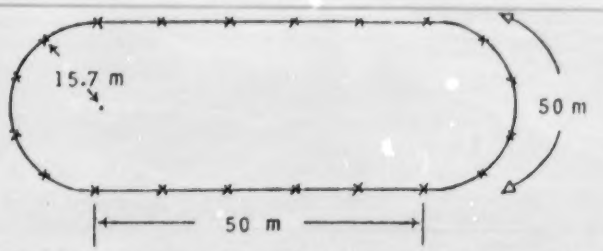
- Measure: 12-minute timed run

- Equipment: 30 m tape measure, 20 traffic cones, 1 stopwatch, 1 whistle, lap score sheets

- General Description: Students are required to run or walk as far as possible around an oval track over a 9-minute time period.

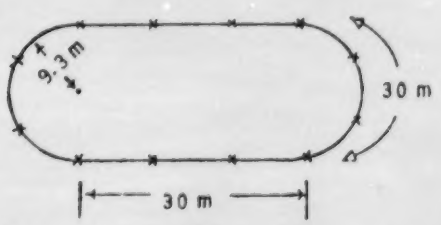
- Procedures: 1) Mark out on a playing field one of the following running courses:

A. 200 m course for large playing fields



Traffic cones are placed every 10m around the course. Each "x" marks a cone location.

B. 120 m course for small playing fields



Traffic cones are placed every 10 m around the course. Each "x" marks a cone location.

2) Arrange the students randomly into two groups. One group runs first, then the second group runs. A partner is assigned to record laps for each runner. Ensure that all runners are cleared for health.

3) The teacher must explain to the total group the nature of the task according to the following outline:

A. Explanation of the test as a measure of cardiovascular fitness or the ability of the heart, lungs and vascular system to process a maximum amount of oxygen in a given time.

Field A used whenever possible. Field B used as a stop-gap measure where appropriate space is lacking. (A standard track may be used with cones placed to mark 10 m intervals.)

B. Emphasis on the test as one which shows how far a person can run in nine minutes.

C. Explanation of the notion of pace (i.e. runners must be encouraged to run at a steady pace throughout the race such that a close to maximum output is achieved). Runners are told not to sprint for the first few laps as they will fatigue too quickly.

D. Instructions:

i) Runners are instructed to begin the run at the starting line on the command "Ready-Go" given by the timer. Runners should try to keep a steady pace throughout the run. Runners must pass on the outside of other runners and must keep as close as possible to the cone track without touching the cones (about one foot away from cones). Runners are encouraged to run as far as possible, however they may walk when they tire, then begin running again.

ii) The timer will count down the time out loud, at one minute intervals, until the last minute which will be counted in 10 second intervals. At the termination of the twelve minute time period, the timer will blow on a whistle. Runners must stop at the whistle and jog slowly in place.

iii) The partner will be responsible for recording on the appropriate score sheet the number of laps completed by the runner. A lap is marked completed each time a runner crosses the starting line.

iv) At the end of the run, while the students are jogging in place, partners will count the number of cones starting from the starting line up to where the student is positioned. The appropriate score in m, calculated by multiplying the number of cones times 10, will be recorded on the score sheet.

v) After a runners' score has been recorded, they will hand in their pinnie and remain jogging on the spot until a second whistle. At the whistle all runners will take a warm down lap.

- Scoring: The total number of laps and the last partial lap (m) are transferred to the students master score sheet at the end of the testing session.

- Points to Consider: 1. Runners must be encouraged to run at their individual best pace and not to "buddy" run

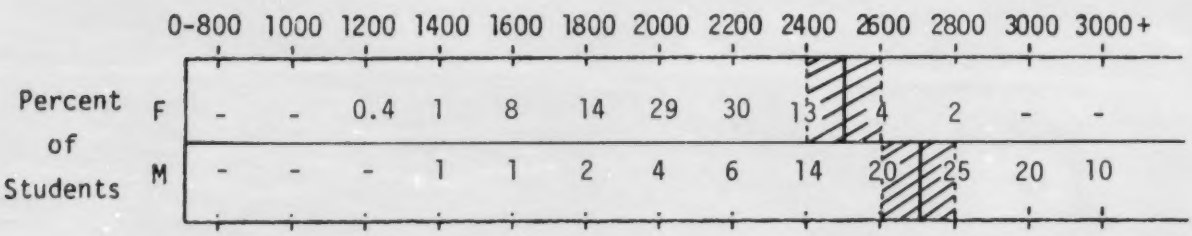
with a friend.

2. Once the runners have started, no verbal encouragement is to be given by testers, or spectators.

3. During the run the lap counters remain by the starting line which should be situated at the end of a straight away. The timer should time from the opposite end of the track from the lap counters.

PROVINCIAL RESULTS - GRADE 11

12 Minute Run: Meters



= Interpretation panel range of minimally acceptable performance and mid-point of range.

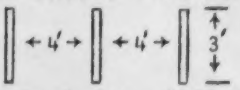
Interpretation panel ratings of provincial results Females - *Weak*

Males - *Satisfactory*

C. Motor Ability (1)

- Measure: Side Slide

- Equipment: Stopwatch, indoor-outdoor carpeting marked with sidelines and centre line as follows;



The distance is 4 feet (121.9 cm) from the middle of the centre line to the outside edge of the sidelines. (See equipment guide)

- General Description: Student slides from sideline to sideline as many times as possible in 10 seconds.

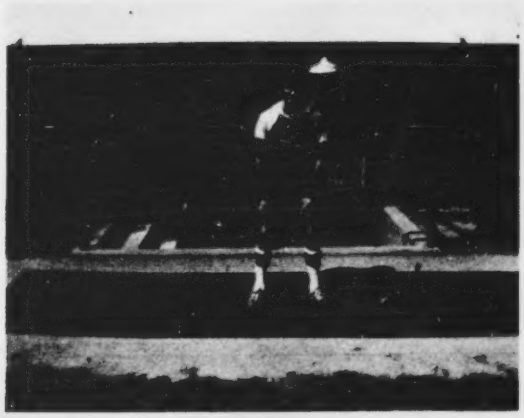
- Procedures:

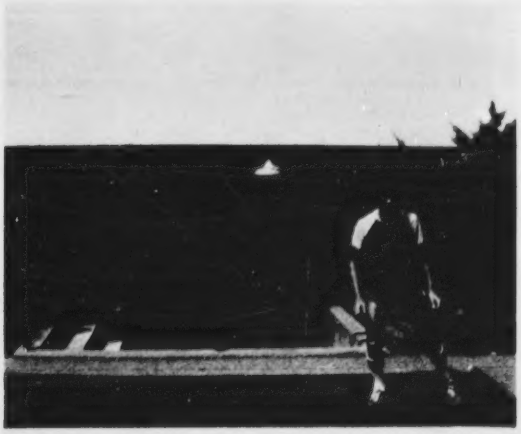
1) Student straddles the centre line and faces straight ahead.

2) Student is instructed to slide to the left sideline, back across the centre line to the right sideline, and to continue in this manner for the time of the trial (10 seconds). Student is instructed to completely cross each sideline with a part of one foot and not to cross the feet at any time. When moving towards a sideline both feet must cross the centre line. Feet and body must be kept facing forward throughout the trial.

3) As a practice off the mat students slide to the left back to the right and back to the left again. A five second practice trial on the mat is given prior to a student's test trials.

4) On command, student slides from side to side as indicated.





- Scoring: Two consecutive trials are given, recording both scores. The score is the total number of lines crossed in 10 seconds, including the centre line. The first sideline crossed is "1", the centre line "2", opposite sideline is "3", etc. Final score is the best of the two trials. If a student does not move according to the requirements (i.e. crosses legs, shoulders turn toward sideline, etc.), demonstrate again and give a re-trial. A total of 2 re-trials may be given throughout the 2 trial test. If student is not successful after second re-trial, score 0 for remaining trials.

- Points to Consider:

1. Demonstrate to group at beginning.
2. Before the practice trial on the mat, give a group practice off the mat, in order to give each student "the feel" of the side slide movement.
3. Point out how to cross sidelines and reinforce proper movement patterns.
4. If errors are evident in the practice trial on the mat, point them out and give re-practice trials until students can complete the practice trial successfully.

PROVINCIAL RESULTS - GRADE 11

Side Slide: Number of Lines Crossed

Percent of Students		0-5	7	9	11	13	15	17	19	21	23	24+
	F	-	-	0.3	2	4	26	38	25	5	0.2	-
	M	-	-	-	1	0.3	5	19	22	20	18	15

= Interpretation panel range of minimally acceptable performance and mid-point of range.

Interpretation panel ratings of provincial results Females - *Satisfactory*

Males - *Satisfactory*

C. Motor Ability (2) 40

- Measure: Wall Pass

- Equipment: 2 basketballs (regulation size), flat wall surface, with restraining line marked on the floor 9 feet from the wall, stopwatch.

- General Description: Student throws a basketball against a wall, and catches it on its return, as many times as possible in 15 seconds.

- Procedures:

1) Student stands behind the restraining line with the basketball.

2) On command, student throws the ball at the wall as rapidly as possible for 15 seconds. Student may use any method of throwing and the ball may be caught on the bounce or volley, but it is not necessary to catch the ball at all for a successful hit.

3) A successful hit is a ball thrown from behind the restraining line and hitting the wall without bouncing.

4) If student loses the ball on the rebound, the tester provides the second ball.

- Scoring: Number of times the ball hits the wall in 15 seconds. Two trials, record both trials. Final score is best of the two trials.

- Points to Consider:

1. Ball must be thrown and caught, not volleyed.
2. Remind students that only balls thrown from behind the restraining line will count.
3. Air pressure should be checked (8.5-9 lbs/ square inch or .598-.633 kg/cm^2).

PROVINCIAL RESULTS - GRADE 11

Wall Pass: Number of Hits

Percent of Students		0-5	7	9	11	13	15	17	19	20+
	F	-	2	19	59	21	2	-	-	-
	M	-	-	1	7	35	42	15	2	-

= Interpretation panel range of minimally acceptable performance and mid-point of range.

Interpretation panel ratings of provincial results Females - *Satisfactory*

Males - *Satisfactory*

C. Motor Ability (3)

- Measure: Overhand Throw for Form

- Equipment: 4 'soft' softballs , 2 traffic cones, 1 chair.

- General Description: Student throws an unlimited number of balls at the wall and is rated with respect to throwing form.

- Procedures: Student proceeds to throw as many balls as are necessary to evaluate the form of the thrower in the following areas:

a) position of the feet
b) body rotation
c) arm action

The student is instructed to throw hard, though it is not necessary to throw as hard as possible.

- Scoring:

1) Feet:
1 = feet parallel and unmoving during throw
2 = same foot forward as throwing arm
3 = opposite foot forward as throwing arm
4 = slight forward step by the opposite foot to the throwing arm, to give added force to the throw
5 = strides well forward with opposite foot to the throwing arm, allowing for full rotation of the hips and provide full or near full weight transfer

2) Body Rotation:
1 = no trunk action
2 = trunk flexion; the trunk action accompanies the forward thrust of the arm by flexing forward at the hips. Preparatory extension may or may not precede forward hip flexion
3 = spinal rotation with little or no pelvic rotation; the upper spine twists away (45° or more) while the pelvis remains essentially fixed facing the line of flight.
4 = block rotation; spine and pelvis both rotate away from the intended line of flight (approaching 90° rotation), then simutaneously begin forward rotation.
5 = pelvic rotation, followed by spinal and shoulder rotation.

3) Arm
Action: 1 = no evidence of overarm throwing pattern.
2 = slight retraction of arm with the throwing hand terminating in a position even with or very slightly behind the head; elbow well flexed.
3 = preparatory phase shows evidence of greater retraction of throwing arm, i.e. "wind up" evident where ball is cocked well behind the body, rather than in a position close to the head. Ball is "pushed" toward the target area as a result of horizontally adducting the arm until the elbow is nearly in front of the shoulder before the forearm is extended.
4 = the forearm is flung forward in a "whipping", rather than a "pushing" fashion; forearm close to full extension at time of ball release.
5 = as in 3 above, with the addition of forearm "lag"; the forearm and back appear to lag, i.e. to remain almost stationary behind the body as the shoulders move toward front facing.

A combined score, out of a possible 15 will also be generated by adding the 3 sub-scores.

- Points to Consider:
1. Stress to students that you want a hard throw, although it is not necessary to throw as hard as possible. During the trials, tester may ask student to throw a little harder, or easier, to allow for better evaluation of the true pattern.

2. Begin with evaluation of the feet and progress through trunk and finally, the arm action. Don't be afraid to use as many trials as you need to identify the predominant (i.e. most often occuring) pattern.

3. Place 2 traffic cones against the throwing wall, approximately 15 feet (4.6m) apart, to mark off a general throwing area.

4. Place a chair close to thrower. Return all balls to the chair after each throw.

PROVINCIAL RESULTS - GRADE 11

Feet: Score

		1	2	3	4	5
Percent of Students	F	0.2	5	15	50	30
	M	-	-	1	25	74

★

Interpretation panel rating of provincial results Females - *Marginal*

Males - *Satisfactory*

Body Rotation: Score

		1	2	3	4	5
Percent of Students	F	0.2	2	29	30	39
	M	-	0.2	4	23	73

★

Interpretation panel rating of provincial results Females - *Satisfactory*

Males - *Satisfactory*

Arm Action: Score

		1	2	3	4	5
Percent of Students	F	-	3	45	50	2
	M	-	0.2	5	58	37

★

Interpretation panel rating of provincial results Females - *Weak*

Males - *Weak*

| = Interpretation panel cut-off point for minimally acceptable performance.

★

EQUIPMENT RESOURCE LIST

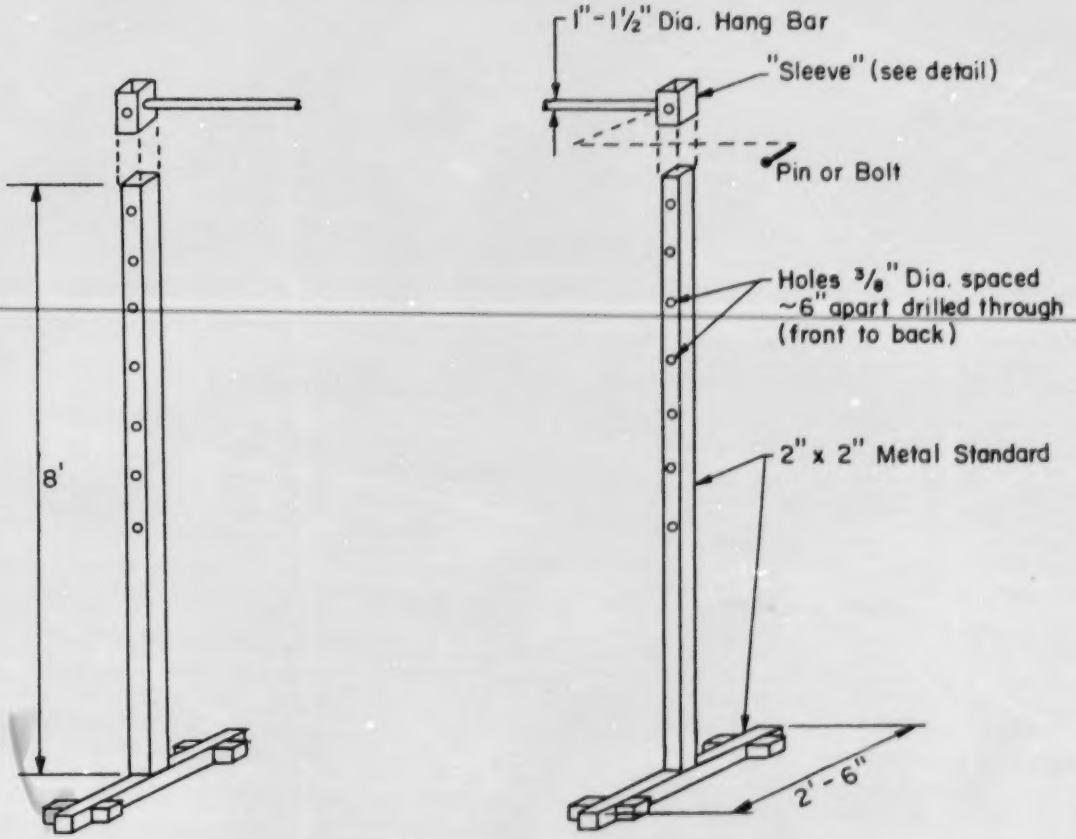
The tests that were chosen by the researchers were included because of their relevance in assessing students' overall psychomotor fitness.

In order that these tests retain their validity, it is important that scientific and accurate measurements be taken. Due to the extreme cost of some of these instruments, it is not feasible that each school purchase their own. However, several school districts have solved this problem by purchasing their own set of instruments. It is our suggestion that school districts purchase a set of measuring instruments and arrange a loan system with their schools in order that the tests can be performed accurately.

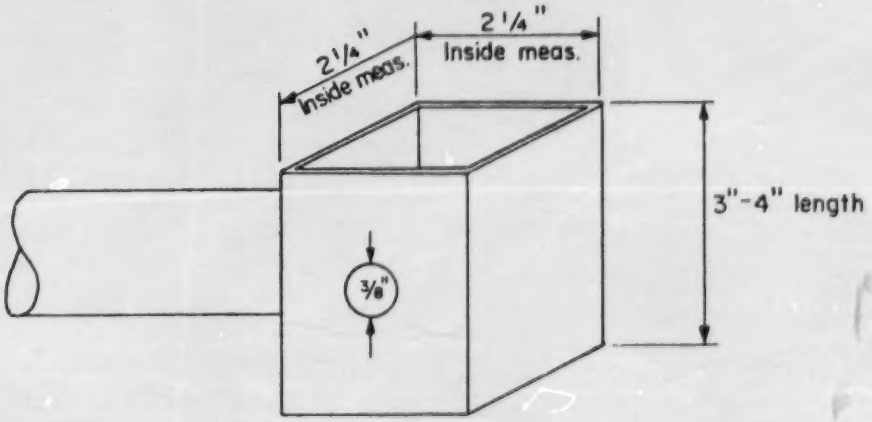
The list below suggests outlets where these instruments can be purchased. It is not exclusive or extensive but includes suppliers of less readily obtainable equipment. A local sporting goods store can supply most of your needs.

Metric Weight Scale	-	Libra Scale Rentals 6984 Palm Avenue Burnaby, B. C. Phone: 438-8231
Sit and Reach Flexibility Board	-	Action B.C. 1600 West 6th Avenue Vancouver, B. C. V6J 1R3 Phone: 734-2706
Anthropometer Grip Dynamometer Skinfold Caliper	-	Quinton Investments 304 - 9320 Parksville Richmond, B. C. Phone: 271-2627
Indoor/Outdoor Carpet Rubber Backing	-	Any carpet outlet - $5.00 - $7.00 per square foot

ADJUSTABLE BAR HANG APPARATUS (METAL)


1"-1½" Dia. Hang Bar
"Sleeve" (see detail)
Pin or Bolt
Holes ⅜" Dia. spaced ~6" apart drilled through (front to back)
2" x 2" Metal Standard
8'
2'-6"

SLEEVE DETAILED



CHAPTER IV

COGNITIVE ITEMS: GRADE 11

The understanding and knowledge of concepts related to physical activity have only recently become an area of emphasis in many physical education programs. As many physical educators are recognizing the importance of students having an understanding of the theory underlying how best to perform a skill or what makes one physically fit, the need develops to evaluate students' grasp of these concepts. The test items which appear in the assessment's cognitive tests give a representative sampling of the possible questions which might be expected at the particular grade level in relation to the learning outcomes of Goal III. (See Chapter 2).

Each cognitive test consist of a series of multiple choice questions assessing the students' understanding and knowledge of various factors related to physical activity. There are an approximately equal number of questions assessing each learning outcome contained in Goal III. For Grade 3 there were no questions related to the psychological learning outcome. The questions are randomly distributed throughout the booklet with the exception of the psychological factors section which is found at the end. Each question contains the response option "I don't know", in order that a distinction might be made between those areas where there is confusion or misunderstanding and those areas where there is a lack of understanding.

Instructions for Administering

This is a paper and pencil test which is easy to administer. The students are allowed whatever time is necessary to finish it. The directions to the students are found on the page before the test items. The items are presented in this chapter in the format used in the assessment. Teachers may produce copies of the items for class or school use.

However, within a particular class or school the test could easily become overused and the validity of the class results in comparison with the provincial results seriously jeopardized. Teachers are encouraged to develop their own tests based on concepts being taught in their classroom.

Scoring

The correct response to each question is indicated on the following pages. Any response other than the one indicated is considered incorrect.

The questions can be looked at individually to see how your class compares with the provincial results. A more useful way of analyzing the results is to group the items according to learning outcomes. This breakdown of test items into learning outcomes follows, including the provincial results. In the summary for each outcome only the percentage who responded correctly (provincial p-value) and the mean for the particular learning outcome is given. The mean is simply the sum of the provincial p-values for all individuals writing the test divided by the number of those individuals. For more detailed results (including the percent of students choosing the foils and 'I don't know' response) see the General Report.

1979 ASSESSMENT OF PHYSICAL EDUCATION

GRADE 11 - COGNITIVE ITEMS

Organization of Test Items and Summary of Results

GOAL III. The physical education program should assist students in developing knowledge and understanding of factors involved in attaining competence in and appreciation of physical activity.

Learning Outcome	Item Number	Correct Answer	P-values		
			Females	Males	All
1	1	B	81	80	80
Rules	8	A	28	39	34
Techniques	14	C	74	65	70
Strategies	17	B	65	83	74
	21	D	52	61	57
	25	D	29	41	35
Provincial mean percent correct: 59	30	D	56	53	55
	35	D	60	77	69
Panel rating: *Satisfactory*					

Learning Outcome	Item Number	Correct Answer	P-values		
			Females	Males	All
2	2	C	58	81	69
Movement	7	D	65	75	70
Principles	11	B	19	52	36
	27	D	65	76	71
	33	D	82	84	83
Provincial mean percent correct: 65	38	C	65	63	64
Panel rating: *Satisfactory*					
3	3	C	50	64	57
Physiological	6	B	32	34	33
Concepts	18	B	81	83	82
	22	D	49	51	50
	23	C	79	58	69
Provincial	29	A	25	23	24
mean percent correct: 54	32	A	66	76	71
Panel	36	B	31	59	45
rating: *Marginal*					
4	4	C	21	37	29
Body	9	C	41	40	41
Structure	15	D	65	62	63
Function	20	A	82	86	84
	24	B	60	69	65
	28	B	53	58	56
Provincial	34	D	5	5	5
mean percent correct: 45	39	C	17	21	19
Panel rating: *Marginal*					

Learning Outcome	Item Number	Correct Answer	P-values		
			Females	Males	All
5	5	A	30	33	31
Physical	10	D	23	26	24
Fitness	12	B	46	41	44
	13	C	7	30	18
	16	D	60	62	61
	19	B	29	42	36
Provincial	26	B	36	50	43
mean percent correct: 42	31	B	80	73	77
Panel rating: *Weak*	37	C	36	53	45
6	1	A	84	80	82
Psychological	2	B	58	60	59
Concepts	3	B	79	75	77
	4	C	58	76	67
	5	A	77	83	80
Provincial	6	B	87	84	85
mean percent correct: 74	7	B	87	89	88
Panel rating: *Very Satisfactory*	8	B	64	49	56

INSTRUCTIONS

This booklet contains a number of questions for you to answer. Your answers to these questions will tell us how much you know and understand about Physical Education. We will be asking these same questions of many other students in British Columbia. Your answers will help to improve the Physical Education program in the province.

Whenever we say *Physical Education*, we mean only the activities that you have in your regular Physical Education classes. This does NOT include organized games or activities which occur during recess, lunch time or after school. Physical Education in your school may also be called *Gym* or *P.E.*

Please read each question carefully and choose one of the answers provided. Mark a ✓ in the box which corresponds to your answer for each question. Mark only one box per question. If you have no idea of the correct answer, mark a ✓ in the box next to the answer "I don't know".

If you have difficulty reading certain words, raise your hand and we will come and assist you.

1. What should you do when you run?

A. Lean slightly backwards ..... ☐ 1
B. Move the arms alternately backwards and forwards ..... ☐ 2
C. Land on the heels of the feet ..... ☐ 3
D. Increase trunk rotation ..... ☐ 4
E. I don't know ..... ☐ 5

2. What is the main purpose of the approach run in high jumping or pole vaulting?

A. It allows time for mental preparation ..... ☐ 1
B. It ensures that the jump is taken from the correct foot ..... ☐ 2
C. It develops momentum ..... ☐ 3
D. It establishes good balance ..... ☐ 4
E. I don't know ..... ☐ 5

3. The performance of which of the following athletes is least likely to be affected by smoking tobacco?

A. A swimmer ..... ☐ 1
B. A runner ..... ☐ 2
C. A high-jumper ..... ☐ 3
D. A tennis player ..... ☐ 4
E. I don't know ..... ☐ 5

4. What is the path followed by the blood in order to get oxygen to the body cells?

A. Heart, lungs, arteries, capillaries ..... ☐ 1
B. Capillaries, arteries, lungs, heart ..... ☐ 2
C. Lungs, heart, arteries, capillaries ..... ☐ 3
D. Heart, lungs, capillaries, arteries ..... ☐ 4
E. I don't know ..... ☐ 5

5. Which of the following food types requires the shortest amount of time to be digested?

A. Carbohydrates ..... ☐ 1
B. Proteins ..... ☐ 2
C. Fats ..... ☐ 3
D. There is no difference ..... ☐ 4
E. I don't know ..... ☐ 5

6. Weak abdominal muscles will:

A. make you less flexible ..... ☐ 1
B. contribute to poor posture ..... ☐ 2
C. grow stronger with proper diet ..... ☐ 3
D. create digestive problems ..... ☐ 4
E. I don't know ..... ☐ 5

7. Which body position will allow for the most efficient stop after a sudden burst of speed?

A. Feet together, knees bent ..... ☐ 1
B. Feet together, legs straight ..... ☐ 2
C. Feet apart, legs straight ..... ☐ 3
D. Feet apart, knees bent ..... ☐ 4
E. I don't know ..... ☐ 5

8. If a basketball team is playing a man-to-man system of defense, each member of the team should:

A. stay between the designated opponent and the basket when the opponents are attacking ..... ☐ 1
B. use the position of the ball to determine the best defensive position on the court ..... ☐ 2
C. stay with the designated opponent at all times, wherever he is on the court ..... ☐ 3
D. stay with the designated opponent only if he is near the ball ..... ☐ 4
E. I don't know ..... ☐ 5

9. Fuel for muscles is provided by which of the following systems?

A. Respiratory ..... ☐ 1
B. Nervous ..... ☐ 2
C. Circulatory ..... ☐ 3
D. Digestive ..... ☐ 4
E. I don't know ..... ☐ 5

10. Which of the following activities relies mainly on anaerobic energy?

A. A 400 metre swim ..... ☐ 1
B. A 5000 metre run ..... ☐ 2
C. A marathon run ..... ☐ 3
D. A 60 metre sprint ..... ☐ 4
E. I don't know ..... ☐ 5

11. What will happen to a ball that is released with topspin?

A. It will swerve to the right ..... ☐ 1
B. It will hit the ground sooner than a ball without topspin ..... ☐ 2
C. It will go farther before hitting the ground than a ball without topspin ..... ☐ 3
D. It will go higher before hitting the ground than a ball without topspin ..... ☐ 4
E. I don't know ..... ☐ 5

12. When doing sit-ups, the abdominal muscles work hardest when:

A. your legs are straight and your hands are locked behind your head ..... ☐ 1
B. your knees are bent and your hands are locked behind your head ..... ☐ 2
C. your legs are straight and your back is arched ... ☐ 3
D. your knees are bent and your back is arched ..... ☐ 4
E. I don't know ..... ☐ 5

13. What is the best method for developing muscle strength?

A. Exercising with light weights for many repetitions ..... ☐ 1
B. Exercising with light weights for a few repetitions ..... ☐ 2
C. Exercising with heavy weights for a few repetitions ..... ☐ 3
D. Exercising with a maximum weight for one repetition ..... ☐ 4
E. I don't know ..... ☐ 5

14. If a person is attempting to jump as high as possible, which of the following techniques will increase the height of the jump?

A. Keep the arms beside the body when leaving the floor ..... ☐ 1
B. Lean forward with the trunk after leaving the floor ..... ☐ 2
C. Bend the knees before leaving the floor ..... ☐ 3
D. Bend the knees after leaving the floor ..... ☐ 4
E. I don't know ..... ☐ 5

15. Movement is the end result of action by the body's:

A. bones ..... ☐ 1
B. nerves ..... ☐ 2
C. muscles ..... ☐ 3
D. all of the above ..... ☐ 4
E. I don't know ..... ☐ 5

16. Why is protein essential for a physically active person?

A. It speeds up digestive processes ..... ☐ 1
B. It helps form simple sugars ..... ☐ 2
C. It absorbs acids ..... ☐ 3
D. It builds body tissues ..... ☐ 4
E. I don't know ..... ☐ 5

17. If you are passing the ball to a team mate who is running forward, where should the ball be aimed?

A. At the hands of the receiver ..... ☐ 1
B. Ahead of the receiver ..... ☐ 2
C. At the eye level of the receiver ..... ☐ 3
D. At the waist of the receiver ..... ☐ 4
E. I don't know ..... ☐ 5

18. Which of the following questions about a drug should be of most concern to athletes?

A. Will the drug improve performance? ..... ☐ 1
B. Is the drug safe? ..... ☐ 2
C. Will the drug relieve pain? ..... ☐ 3
D. Will the drug delay the onset of fatigue? ..... ☐ 4
E. I don't know ..... ☐ 5

19. In terms of building long term fitness, the average person should be most concerned with developing their:

A. muscular system ..... ☐ 1
B. aerobic energy system ..... ☐ 2
C. anaerobic energy system ..... ☐ 3
D. skilled running patterns ..... ☐ 4
E. I don't know ..... ☐ 5

20. Which of the following statements is correct?

A. After puberty, boys, on the average, are stronger than girls ☐ 1

B. After puberty, boys, on the average, are more flexible than girls ☐ 2

C. Before puberty, boys, on the average, are taller than girls ☐ 3

D. Before puberty, boys, on the average, are heavier than girls ☐ 4

E. I don't know ☐ 5

21. Most team sports involve movement into open spaces. The purpose of moving into an open space is:

A. to cause an opponent to move with you ☐ 1

B. to make room for the player with the ball ☐ 2

C. to avoid an opponent who remains close to you ☐ 3

D. all of the above ☐ 4

E. I don't know ☐ 5

22. If the breathing rates of trained and untrained individuals were compared during a long run, what would be the result?

A. The untrained athlete would breathe shallower and slower ☐ 1

B. The trained athlete would breathe shallower and faster ☐ 2

C. The untrained athlete would breathe deeper and faster ☐ 3

D. The trained athlete would breathe deeper and slower ☐ 4

E. I don't know ☐ 5

23. If your class has started a weight training and conditioning program, which of the following results might be expected:

A. The girls and boys in the class will develop large, bulky muscles ..... ☐ 1
B. The number of muscles in the body will increase ..... ☐ 2
C. The muscles in the body will become stronger ..... ☐ 3
D. The number of muscle fibres in each muscle will increase ..... ☐ 4
E. I don't know ..... ☐ 5

24. Which of the following statements describes an efficient circulatory system?

A. A pulse that increases rapidly during exercise ..... ☐ 1
B. A pulse that returns quickly to normal after exercise ..... ☐ 2
C. A pulse that returns slowly to normal after exercise ..... ☐ 3
D. A pulse that is high all the time ..... ☐ 4
E. I don't know ..... ☐ 5

25. Which of the following statements is <u>true</u> when playing both badminton doubles and volleyball?

A. Overhand serves are illegal ..... ☐ 1
B. Serves that contact the net are legal ..... ☐ 2
C. The serve must land within a designated service area of the court ..... ☐ 3
D. It is possible for one person to serve an entire game ..... ☐ 4
E. I don't know ..... ☐ 5

26. Why is "overloading" a muscle important in developing muscle strength?

A. "Overloading" destroys weak muscle fibres and replaces them with stronger ones ..... ☐ 1

B. Muscles grow larger and stronger only in response to progressively increasing loads ..... ☐ 2

C. "Overloading" stretches muscles beyond their capacity ..... ☐ 3

D. Waste materials do not accumulate during overload ... ☐ 4

E. I don't know ..... ☐ 5

27. When striking an object with an implement (for example, hitting a ball with a bat or racquet), it is most efficient if:

A. you contact the ball slightly behind your back foot ..... ☐ 1

B. you keep your weight evenly distributed throughout the swing ..... ☐ 2

C. you transfer your weight from your front foot to your back foot ..... ☐ 3

D. you transfer your weight from your back foot to your front foot ..... ☐ 4

E. I don't know ..... ☐ 5

28. Which of the following tissues is not as easily repaired by the body once it is injured?

A. Muscle ..... ☐ 1

B. Nerve ..... ☐ 2

C. Bone ..... ☐ 3

D. Skin ..... ☐ 4

E. I don't know ..... ☐ 5

29. Which of the following gases is found in tobacco smoke and reduces physical endurance?

A. Carbon monoxide ..... ☐ 1
B. Nitrogen ..... ☐ 2
C. Carbon dioxide ..... ☐ 3
D. Sulphur dioxide ..... ☐ 4
E. I don't know ..... ☐ 5

30. Which of the following situations would be most likely to result in a "point" in a badminton game?

A. The server steps on the serving line ..... ☐ 1
B. The receiving side sends the bird high and deep into the opponent's court ..... ☐ 2
C. The receiving side sends a fast, sharply angled shot to the floor of the opponent's court ..... ☐ 3
D. The serving side sends a fast, sharply angled shot to the floor of the opponent's court ..... ☐ 4
E. I don't know ..... ☐ 5

31. Which of the following methods is most accurate for locating and recording the pulse?

A. During activity, keep the thumb of one hand on the wrist of the other arm ..... ☐ 1
B. After activity, press two fingers against the side of the neck ..... ☐ 2
C. During activity, press two fingers against the side of the neck ..... ☐ 3
D. After activity, keep the thumb of one hand on the wrist of the other arm ..... ☐ 4
E. I don't know ..... ☐ 5

32. Strenuous activities will place the greatest strain on the body:

A. during hot humid weather ..... ☐ 1
B. during cold weather ..... ☐ 2
C. during wet weather ..... ☐ 3
D. at low altitudes ..... ☐ 4
E. I don't know ..... ☐ 5

33. What is the safest way to fall?

A. Keep your head up to see where you are going ..... ☐ 1
B. Put your arms out straight ahead of you ..... ☐ 2
C. Land on your hands and knees ..... ☐ 3
D. Curl up and roll as you fall ..... ☐ 4
E. I don't know ..... ☐ 5

34. Which of the following is not a type of muscle tissue?

A. Smooth ..... ☐ 1
B. Skeletal ..... ☐ 2
C. Cardiac ..... ☐ 3
D. Connective ..... ☐ 4
E. I don't know ..... ☐ 5

35. When playing volleyball, which body part should be used to receive a ball that is coming at you low and hard?

A. Palms of your hands ..... ☐ 1
B. Fists ..... ☐ 2
C. Knee ..... ☐ 3
D. Forearms ..... ☐ 4
E. I don't know ..... ☐ 5

36. As a result of intensive physical activity, energy will be used up and waste products will accumulate. The muscles are then in a state of:

A. Sensitivity ..... ☐ 1
B. Fatigue ..... ☐ 2
C. Irritability ..... ☐ 3
D. Extension ..... ☐ 4
E. I don't know ..... ☐ 5

37. Which of the following tests is <u>not</u> used to measure cardio-vascular endurance?

A. 12 Minute Run ..... ☐ 1
B. Stationary Bicycle Test ..... ☐ 2
C. The Sit-Up Test ..... ☐ 3
D. The Step Test ..... ☐ 4
E. I don't know ..... ☐ 5

38. In which position will a skater or a diver rotate, or spin, most quickly?

A. Arms away from the body; legs together ..... ☐ 1
B. Arms above the head; legs apart ..... ☐ 2
C. Arms close to the body; legs together ..... ☐ 3
D. Arms close to the body; legs apart ..... ☐ 4
E. I don't know ..... ☐ 5

39. Which blood vessels carry nourishment <u>to</u> the heart muscle?

A. Coronary veins ..... ☐ 1
B. Carotid arteries ..... ☐ 2
C. Coronary arteries ..... ☐ 3
D. Pulmonary veins ..... ☐ 4
E. I don't know ..... ☐ 5

Here are eight more questions that we want you to answer. These questions are a little different from the ones you have already answered. We want to know what you think about these questions. Read each one carefully and mark the answer that says what you think is the *best* answer to each question.

1. Which of the following statements suggests a worthwhile benefit of team sports?

A. The needs of the team are important as well as the needs of each person ..... ☐ 1

B. People can make the team even though they don't get to play ..... ☐ 2

C. Coaching for team sports is usually of a higher calibre than for individual sports ..... ☐ 3

D. Players on teams are always under a great deal of stress or anxiety ..... ☐ 4

E. I don't know ..... ☐ 5

2. Which of the following statements best describes an important role of a good Physical Education program?

A. It prepares students for interschool teams ..... ☐ 1

B. It teaches students how to make good use of leisure time ..... ☐ 2

C. It prepares students for a profession in athletics ..... ☐ 3

D. It provides a rest from other school subjects ... ☐ 4

E. I don't know ..... ☐ 5

3. Which of the following is the <u>least</u> important thing in determining good team play?

A. Each member appreciates the contribution of every other member ..... ☐ 1
B. Players on the same team have many different characteristics ..... ☐ 2
C. Each team member has a positive attitude ..... ☐ 3
D. Good communication exists between players and coach ☐ 4
E. I don't know ..... ☐ 5

4. Your game skills will probably improve most quickly if:

A. you win all of your games easily ..... ☐ 1
B. you lose all of your games by large scores ..... ☐ 2
C. all of your games are close ..... ☐ 3
D. all of your games are against rough players ..... ☐ 4
E. I don't know ..... ☐ 5

5. People involved in competitive physical activities will likely experience high levels of anxiety and stress during a game if:

A. winning becomes essential to them ..... ☐ 1
B. the game is well officiated ..... ☐ 2
C. they decrease their amount of physical exertion .... ☐ 3
D. winning becomes unimportant to them ..... ☐ 4
E. I don't know ..... ☐ 5

6. You are most likely to be physically fit if:

A. your parents are good athletes ..... ☐ 1
B. your attitude towards fitness is good ..... ☐ 2
C. you know a great deal about fitness ..... ☐ 3
D. your school has good physical education facilities and equipment ..... ☐ 4
E. I don't know ..... ☐ 5

7. If you want to help your team mates become better players, you should probably:

A. keep reminding them of all their errors ..... ☐ 1
B. praise them, while pointing out their errors ..... ☐ 2
C. be strict with them ..... ☐ 3
D. tell them how the professionals do it ..... ☐ 4
E. I don't know ..... ☐ 5

8. Which one of the following ways of helping children to learn sports skills is the <u>least</u> <u>acceptable</u>?

A. Setting goals that the children can work towards ... ☐ 1
B. Getting the children to work harder by always pointing out their mistakes ..... ☐ 2
C. Giving the children encouraging talks before games and practices ..... ☐ 3
D. Getting the children to improve on their previous scores ..... ☐ 4
E. I don't know ..... ☐ 5

CHAPTER V

ATTITUDE TOWARD PARTICIPATION IN PHYSICAL ACTIVITY: GRADE 11

Introduction

The "Attitude Toward Physical Activity" questionnaires administered to the students assessed their values held towards actual participation in physical activity. Physical activities were defined as, "...games, sports and dance such as: tag, bike riding, hiking, soccer, swimming, gymnastics and square dancing". If one of the goals of the Physical Education program (Goal IV) is to aid in the development of positive attitudes towards physical activity, with the anticipation that this positive attitude will contribute to a continuing involvement in physical activity in later years, then an assessment restricted to attitudes towards Physical Education is not sufficient. Thus the necessity to measure values held for both Physical Education and physical activity.

Inventory Description

The attitudes held towards Physical Education were measured through several questions on the Student Questionnaires (see General Report for a discussion of those questions). To measure the attitudes held towards participation in physical activity, an adaptation of Simon and Smoll's (1974) Childrens' Attitude Towards Physical Activity (CATPA) inventory was utilized. The CATPA inventory, in turn, is a modification for children of Kenyon's (1968) attitude inventory. This inventory was chosen as it has a strong theoretical base, a high degree of internal consistency, adequate test re-test reliability, and is commonly used throughout North America and thus comparative data is available. Furthermore, it is one of the few available instruments that assesses attitudes towards physical activity, although there are numerous scales which attempt to measure attitudes towards Physical Education.

The Kenyon inventory is based on Kenyon's model of physical activity as a multidimensional socio-psychological phenomenon comprised of the following six sub-domains:

a) a social experience (activities whose primary purpose is to provide a medium for social intercourse),

b) health and fitness (activities characterized primarily by their contribution to improvement of one's health and physical fitness),

c) the pursuit of vertigo (physical experiences providing, at some risk to the participant, an element of thrill through the medium of speed, acceleration, sudden change of direction or exposure to dangerous situations).

d) an aesthetic experience (activities perceived as possessing beauty or artistic qualities).

e) catharsis (activities which provide a release of frustration - precipitating tension through some vicarious means), and

f) an ascetic experience (activities which require long, strenous, and often painful training and involve stiff competition demanding a deferment of many gratifications).

The CATPA inventory was similarly constructed but with substantial modifications in the wording in order to bring the level of reading comprehension to that of fourth through sixth grade children. Additional modifications were made for this assessment and are detailed in the General Report.

The inventory consists of questions (beginning "How do you feel about ...") which are completed with a phrase describing one of the six sub-domains. The responses are made to bipolar adjective pairs e.g. happy - sad, on a five point scale.

The grade 11 inventory measures attitudes in each of Kenyon's six sub-domains:

Social experience	-	Question 1 and 4
Health and fitness	-	Question 2 and 6
Pursuit of vertigo	-	Question 3
Aesthetic experience	-	Question 5
Catharsis	-	Question 7
Ascetic	-	Question 8

Each page begins with the question "How do you feel about the idea in the box?", followed by a descriptive phrase on participation in physical activity as it relates to a particular sub-domain. Students responded to each statement via five separate five-point scales utilizing bi-polar adjective pairs (see example on following page). Because the descriptive phrases for two of the sub-domains, social experience and health and fitness, contained two ides for which different values might be held, each was split into two questions.

Instructions for Administering

Complete instructions for administering the inventory follow. They are to be read aloud to the students. The visual aid below will be needed. It may be drawn on the blackboard or on a large piece of paper so that the entire class can see it.

How do you feel about the idea in the box?

REFEREE

Always Think About the Idea in the Box

If you do not understand this idea,
mark this box ☐ and go to the next page.

1.	Good	___ :	___ :	___ :	___ :	___	Bad
2.	Of no Use	___ :	___ :	___ :	___ :	___	Useful
3.	Not Pleasant	___ :	___ :	___ :	___ :	___	Pleasant
4.	Nice	___ :	___ :	___ :	___ :	___	Awful
5.	Happy	___ :	___ :	___ :	___ :	___	Sad
		(1)	(2)	(3)	(4)	(5)	

The attitude inventory items are presented in this chapter. Teachers may produce copies of the items for class or school use.

Attitude Instructions*: Grade 11

This questionnaire is designed to find out how you feel about physical activity. Physical activities are games, sports, and dance such as tag, soccer, hockey, ballet and figure skating on ice.

Each one of you has a booklet. Do not open it yet. Please listen carefully to the instructions. (Refer to visual aid V.A. I).

At the top of each page in your booklet there is a box, and in the box there is an idea. Down below the box are five different pairs of words. You will be marking these word pairs to show how you feel about the idea. This is not a test, so there are no right or wrong answers. Read the idea in the box, for example, REFEREE. Now go down to the first pair of words -- Good-Bad. How do you feel about Referees? If you think that they are very good, you would put a "✓" here (mark at the end of the scale by good) or, if you think that they are very bad, you would put a "✓" here (mark at the end of the scale by bad). If you think that referees are pretty good but not super good you would put a "✓" here (indicate) or if you thought that referees were sort of bad but not really bad you would put a "✓" here (indicate). If you think that referees are neither good nor bad (i.e., a neutral feeling) then put a "✓" in the middle. If you do not understand the idea in the box put a "✓" in the I do not understand box on the middle of the page. Then go to the next page.
If you understand the idea in the box but not the word pair, leave the word pair line blank and go on to the next word pair. Do you have any questions?

It is important for you to remember several things. First of all, put your "✓" right in the middle of the space - not on top of the dots. Second, there are five pairs of words on each page, so how many "✓"'s will you have on each page? (Five).

When I tell you to begin, go through the booklet page by page. Read the idea in the box at the top of the page and fill in how you feel about all of the word pairs before you go on to the next page. Don't go back to a page after you have finished it; and don't try to remember how you answered the other pages. Think about each word pair by itself. As you go through the booklet go fairly quickly; don't worry or think too long about any word pair. Mark the first thing that comes into your mind, but don't be careless. Remember, the idea in the box at the top of each page is a new idea, so think only about that idea. When you are all finished, put down your pencil and go back through the booklet to make sure that you haven't left anything out by mistake. After you have finished checking, turn your booklet over and wait until everyone is finished. If you have any questions raise your hand and I will come around and help you. You may begin.

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*To be read aloud by the teacher.

Scoring

The items are scored using the five point scale shown at the bottom of the test page. To ensure that "5" is always associated with positive attitudes and "1" with negative attitudes, it will be necessary to reverse the order of several bi-polar adjective pairs. Therefore, for each question, parts 1, 4 and 5 will have to be scored in reverse.

For example:

1.	Good	✓ (5)	: ___ (4)	: ___ (3)	: ___ (2)	: ___ (1)	Bad	5
2.	Of no Use	___ (1)	: ___ (2)	: ___ (3)	: ___ (4)	: ✓ (5)	Useful	5
3.	Not Pleasant	___ (1)	: ___ (2)	: ___ (3)	: ✓ (4)	: ___ (5)	Pleasant	4
4.	Nice	___ (5)	: ___ (4)	: ✓ (3)	: ___ (2)	: ___ (1)	Awful	3
5.	Happy	___ (5)	: ✓ (4)	: ___ (3)	: ___ (2)	: ___ (1)	Sad	4
							TOTAL -------	21

The scores can then be added to give a total score to a maximum of 25. To obtain a mean score for each sub-domain divide the score obtained by 5. Using the example above, 21 ÷ 5 = 4.2, giving 4.2 as the mean value. To obtain the mean score for your class in any one sub-domain, add the mean scores obtained by each student for the particular sub-domain and divide by the number of students assessed.

These scores can be used in comparison with provincial assessment results (see following page) or with those of other studies reported in the General Report of the Provincial Assessment. They might also be used to determine any change in attitude over the instructional year. For this purpose the inventory could be administered in September and again the following June.

ATTITUDE INVENTORY: GRADE 11

Physical Activity Sub-Domain	Provincial Results	
	Mean	Rank*
Social (a) Taking part in physical activities which give you a chance to meet new people.	4.4	4
Social (b) Taking part in physical activities which give you a chance to be with your friends.	4.5	1
Health and Fitness (a) Taking part in physical activities to make you healthier.	4.4	3
Health and Fitness (b) Taking part in physical activities to get your body in better condition.	4.5	2
Vertigo** Taking part in exciting physical activities that could be dangerous because you move very fast and must change direction quickly.	3.7	7
Aesthetic** Taking part in physical activities which have beautiful and graceful movements.	3.7	6
Catharsis Taking part in physical activities to reduce stress from emotional problems you might have.	4.2	5
Ascetic Physical activities that have long and hard practices. To spend time in practice you need to give up other things you like to do.	3.3	8

** Scores were ranked before the means were rounded off, therefore the apparently equivalent means ranked differently.*
***There were substantial sex differences on these two variables, with Females higher than Males on Aesthetic and vice versa on Vertigo. (See General Report for a full description of these differences.)*

ATTITUDE ASSESSMENT INSTRUCTIONS

This questionnaire is designed to find out how you feel about taking part in physical activity. Physical activities are games, sports and dance such as tag, bike riding, hiking, soccer, swimming, gymnastics and square dancing. These physical activities may or may not be done as part of your physical education program.

At the top of each page in the booklet there is a box, and in the box there is an idea. Below the box there are five different pairs of words. You will be marking a ✓ along the scale between the word pairs to show how you feel about the idea. This is not a test. There are no right or wrong answers. If you do not understand the idea in the box put a ✓ in the I DO NOT UNDERSTAND box at the top of the page.

How do you feel about the idea in the box?

PHYSICAL ACTIVITY AS A SOCIAL EXPERIENCE

Taking part in physical activities which give you a chance to meet new people.

Always Think About the Idea in the Box

If you do not understand this idea, mark this box ☐ and go to next page.

1.	good	_____:_____:_____:_____:_____	bad
2.	of no use	_____:_____:_____:_____:_____	useful
3.	not pleasant	_____:_____:_____:_____:_____	pleasant
4.	nice	_____:_____:_____:_____:_____	awful
5.	happy	_____:_____:_____:_____:_____	sad

(1) (2) (3) (4) (5)

How do you feel about the idea in the box?

PHYSICAL ACTIVITY FOR HEALTH AND FITNESS

Taking part in physical activities to make you healthier.

Always Think About the Idea in the Box

If you do not understand this idea, mark this box ☐ and go to next page.

1. good _____:_____:_____:_____:_____ bad

2. of no use _____:_____:_____:_____:_____ useful

3. not pleasant _____:_____:_____:_____:_____ pleasant

4. nice _____:_____:_____:_____:_____ awful

5. happy _____:_____:_____:_____:_____ sad

(1) (2) (3) (4) (5)

How do you feel about the idea in the box?

PHYSICAL ACTIVITY AS A SOCIAL EXPERIENCE

Taking part in physical activities which give you a chance to be with your friends.

Always Think About the Idea in the Box

If you do not understand this idea, mark this box ☐ and go to next page.

1.	good	____:____:____:____:____	bad
2.	of no use	____:____:____:____:____	useful
3.	not pleasant	____:____:____:____:____	pleasant
4.	nice	____:____:____:____:____	awful
5.	happy	____:____:____:____:____	sad

(1) (2) (3) (4) (5)

How do you feel about the idea in the box?

PHYSICAL ACTIVITY AS A SOCIAL EXPERIENCE

Taking part in physical activities which give you a chance to be with your friends.

Always Think About the Idea in the Box

If you do not understand this idea, mark this box ☐ and go to next page.

1.	good	_____:_____:_____:_____:_____	bad
2.	of no use	_____:_____:_____:_____:_____	useful
3.	not pleasant	_____:_____:_____:_____:_____	pleasant
4.	nice	_____:_____:_____:_____:_____	awful
5.	happy	_____:_____:_____:_____:_____	sad

(1) (2) (3) (4) (5)

How do you feel about the idea in the box?

PHYSICAL ACTIVITY AS THE BEAUTY IN HUMAN MOVEMENT

Taking part in physical activities which have beautiful and graceful movements.

Always Think About the Idea in the Box

If you do not understand this idea, mark this box ☐ and go to next page.

1.	good	_____:_____:_____:_____:_____	bad
2.	of no use	_____:_____:_____:_____:_____	useful
3.	not pleasant	_____:_____:_____:_____:_____	pleasant
4.	nice	_____:_____:_____:_____:_____	awful
5.	happy	_____:_____:_____:_____:_____	sad

(1) (2) (3) (4) (5)

How do you feel about the idea in the box?

PHYSICAL ACTIVITY FOR HEALTH AND FITNESS

Taking part in physical activities to get your body in better condition.

Always Think About the Idea in the Box

If you do not understand this idea, mark this box ☐ and go to next page.

1. good ____:____:____:____:____ bad

2. of no use ____:____:____:____:____ useful

3. not pleasant ____:____:____:____:____ pleasant

4. nice ____:____:____:____:____ awful

5. happy ____:____:____:____:____ sad

(1) (2) (3) (4) (5)

How do you feel about the idea in the box?

PHYSICAL ACTIVITY FOR THE RELEASE OF TENSION

Taking part in physical activities to reduce stress from emotional problems you might have.

Always Think About the Idea in the Box

If you do not understand this idea, mark this box ☐ and go to next page.

1. good ____:____:____:____:____ bad

2. of no use ____:____:____:____:____ useful

3. not pleasant ____:____:____:____:____ pleasant

4. nice ____:____:____:____:____ awful

5. happy ____:____:____:____:____ sad

(1) (2) (3) (4) (5)

How do you feel about the idea in the box?

PHYSICAL ACTIVITY AS LONG AND HARD TRAINING

Physical activities that have long and hard practices. To spend time in practice you need to give up other things you like to do.

Always Think About the Idea in the Box

If you do not understand this idea, mark this box ☐ and go to next page.

1. good _____:_____:_____:_____:_____ bad

2. of no use _____:_____:_____:_____:_____ useful

3. not pleasant _____:_____:_____:_____:_____ pleasant

4. nice _____:_____:_____:_____:_____ awful

5. happy _____:_____:_____:_____:_____ sad

(1) (2) (3) (4) (5)